**SOW Version 1.0**
**17 November 2015**

# STATEMENT OF WORK
# FOR THE
# ENGINEERING SUPPORT GROUP AT
# RESEARCH AND ENGINEERING GROUP (AIR-4.0)
# ENGINEERING SUPPORT SERVICES (ESS) INDEFINITE DELIVERY/INDEFINITE QUANTITY CONTRACT (ID/IQC)

**NAVAL AIR WARFARE CENTER – IN SERVICE SUPPORT CENTER**
**FLEET READINESS CENTER EAST**
**CHERRY POINT, NC 28533-0021**



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DOCUMENT REVISION HISTORY

| Rev. 6 | | Effective Date |
|---|---|---|
| Rev 7 | The following changes were made: | 17 Nov 2015 |

| Affected paragraph | Change |
|---|---|
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Statement of Work
For The Engineering Support Group at Research and Engineering Group (Air-4.0)
Engineering Support Services (ESS) Indefinite Delivery/Indefinite
Quantity Contract (ID/IQC)

## 1. SCOPE

This Statement of Work (SOW) defines and provides the basic requirements of the general tasks to be performed under the Engineering Support Services (ESS) Indefinite Delivery/Indefinite Quantity Contract (ID/IQC). The contractor shall provide engineering and technical support for requirements as identified in the SOW. The contractor shall provide the required level of experience and qualifications to support these requirements. Contractor personnel may be required to sign non-disclosure agreements upon award of task orders for the purpose of protecting sensitive information, both government and commercial. The type and level of detail support will vary depending upon requirements and the scope of the task order. Task orders shall be issued under this contract in accordance with a task order statement of work (SOW). Task orders will be issued for efforts that support requirements through the different phases of the lifecycle of each platform listed below. IQC Task Orders (TOs) may include engineering support of new weapon systems, system modifications, foreign military sales (FMS) and support systems. Appendix A contains a list of acronyms used in this SOW and their meanings.

### 1.1 Background

The Research and Engineering Group (AIR-4.0) of the In-Service Support Center (ISSC) located at Fleet Readiness Center East (FRC East) on the Marine Corps Air Station (MCAS) Cherry Point, in Havelock, North Carolina provides worldwide naval aviation ESS for both the FRC East production and Fleet operations. The Research and Engineering Group (AIR-4.0) plans to procure ESS in support of weapon systems supported by the AIR-4.0 competencies at Cherry Point, North Carolina. This includes the AV-8, C-130, H-1, H-46, H-53, H-60, V-22, MQ-8, RQ-21, F-35, Consolidated Automated Support System (CASS), Foreign Military Sales and the various engines, structures, components and support systems associated with these and other future assigned weapon systems. Services will be required to support the full range of engineering disciplines required to support these weapon systems. The Research and Engineering Group (AIR-4.0) also requires technical service support functions for the In-Service Support Center (ISSC). Tasks are generated from a variety of sources for the Research & Engineering Group at Cherry Point that include but are not limited to the Fleet, FRC East and various Program Managers Aircraft (PMA).

### 1.2 Definitions

The following definitions apply to this SOW.

#### 1.2.1 **Error! Reference source not found.**

Per the Federal Acquisition Regulations, Part 2.101, "Commercial Item" means:

a. Any item, other than real property, that is of a type customarily used by the general public or by non-governmental entities for purposes other than governmental purposes, and--

(1) Has been sold, leased, or licensed to the general public; or

(2) Has been offered for sale, lease, or license to the general public;

b. Any item that evolved from an item described in paragraph a. of this definition through advances in technology or performance and that is not yet available in the commercial marketplace, but will be available in the commercial marketplace in time to satisfy the delivery requirements under a government solicitation;

c. Any item that would satisfy a criterion expressed in paragraphs a. or b. of this definition, but for--

(1) Modifications of a type customarily available in the commercial marketplace; or

(2) Minor modifications of a type not customarily available in the commercial marketplace made to meet federal government requirements. Minor modifications means modifications that do not significantly alter the non-governmental function or essential physical characteristics of an item or component, or change the purpose of a process. Factors to be considered in determining whether a modification is minor include the value and size of the modification and the comparative value and size of the final product. Dollar values and percentages may be used as guideposts, but are not conclusive evidence that a modification is minor;

d. Any combination of items meeting the requirements of paragraphs a., b., c., or e. of this definition that are of a type customarily combined and sold in combination to the general public;

e. Installation services, maintenance services, repair services, training services, and other services if--

(1) Such services are procured for support of an item referred to in paragraphs a., b., c., or d. of this definition, regardless of whether such services are provided by the same source or at the same time as the item; and

(2) The source of such services provides similar services contemporaneously to the general public under terms and conditions similar to those offered to the federal government;

f. Services of a type offered and sold competitively in substantial quantities in the commercial marketplace based on established catalog or market prices for specific tasks performed or specific outcomes to be achieved and under standard commercial terms and conditions. For purposes of these services--

(1) "Catalog price" means a price included in a catalog, price list, schedule, or other form that is regularly maintained by the manufacturer or vendor, is either published or otherwise available for inspection by customers, and states prices at which sales are currently, or were last, made to a significant number of buyers constituting the general public; and

(2) "Market prices" means current prices that are established in the course of ordinary trade between buyers and sellers free to bargain and that can be substantiated through competition or from sources independent of the offerors.

g. Any item, combination of items, or service referred to in paragraphs a. through f. of this definition, notwithstanding the fact that the item, combination of items, or service is transferred between or among separate divisions, subsidiaries, or affiliates of a contractor; or

h. A Non-Developmental Item, if the procuring agency determines the item was developed exclusively at private expense and sold in substantial quantities, on a competitive basis, to multiple State and local governments.

### 1.2.2 Non-Developmental Item (**Error! Reference source not found.**)

Per the Federal Acquisition Regulations, Part 2.101, NDI means:

a. Any previously developed item of supply used exclusively for governmental purposes by a federal agency, a state or local government, or a foreign government with which the United States has a mutual defense cooperation agreement;

b. Any item described in paragraph a. of this definition that requires only minor modifications (see 1.2.1, c., (2)) or modifications of a type customarily available in the commercial marketplace in order to meet the requirements of the procuring department or agency; or

c. Any item of supply being produced that does not meet the requirements of paragraph a. or b., solely because the item is not yet in use.

1.3 Method of tasking

Government requirements issued under the basic ID/IQC will be met through individual TOs. Individual TOs will be issued based on the SOW approach. This approach is described in 0below. TOs may be issued during any phase of an aircraft system's life cycle, including disposal, and will be related to specific weapon systems, and their associated engines, structures, components, and support systems; on-site technical assistance; development of engineering data; engineering investigations and maintenance for aircraft systems such as:

a. AV-8
b. C-130
c. H-1
d. H-46
e. H-53
f. H-60
g. V-22
h. MQ-21
i. RQ-21
j. F-35
k. CASS
l. Foreign Military Sales (FMS)

1.3.1 SOW approach

In instances where the government objectives are clearly defined, the government will issue a TO based on the SOW approach. Under this approach, the government will prepare a TO SOW specifying the requirements. The government will also provide appropriate Contract Data Requirements List (CDRL) items (DD Forms 1423) and other required TO documentation to the contractor.

1.4 Basis For Performance

1.4.1 Hours Of Operation

The FRC East Cherry Point (including remote sites) working hours are seven days a week as follows: (1) "A" Shift-0600 to 1430 hours; (2) "B" Shift-1430 to 2300 hours, and (3) "C" Shift-2200 to 0630 hours. The work hours are subject to change as deemed appropriate by the Government due to weather conditions, or construction. The contractor shall be required to respond accordingly. The contractor workforce shall be available to work the “A”, “B” and “C” shifts, Monday through Friday; however, they may be required to work alternate shifts (Tuesday through Saturday) as required. Normal shift start and stop times for contractor personnel will coincide with the above production shop shifts, with a maximum work day of 12 hours. The contractor shall provide engineering support services after normal working hours, evenings and weekends, when appropriate, based on the specific needs of FRC East Cherry Point and the Fleet.

1.4.2 Government Furlough Periods

Notwithstanding any other provision of this contract, in the event that the government reduces operations pursuant to a furlough of civilian employees of the DoD, the level of effort for this contract or task order established in 5252.211-9503, Level of Effort (Cost Reimbursement) (NAVAIR) (Dec 2012) – Alt I (Dec 2012)

shall be reduced for the tenure of the civilian furlough. The level of effort for the contract or task order during the civilian furlough period shall be expended at an average rate to be determined at the task order level in the event of a furlough hours per week.

The contractor is not required to remain on standby and should take every effort to minimize its overhead costs during the reduction. At the conclusion of the civilian furlough period, the level of effort will revert to the prior rate. The contractor will not be required to immediately revert to the prior level of effort, but rather will be allowed to transition at an amount of time based on mutual Government and Contractor agreement to revert to the prior rate.

During the civilian furlough period, unless otherwise authorized by the Procuring Contracting Officer (PCO), the government installation work schedule will consist of an 8-hour work day Monday through Thursday. Therefore, Friday will not be part of the government installation work schedule. At the conclusion of the civilian furlough period, the government installation work schedule will revert to the prior established schedule. This revertment to the normal work week shall take place automatically, and will not be effected by Executive Order or an administrative leave determination.

### 1.4.3 Federal Holidays

The contractor will normally not provide services on the following federal holidays: New Year's Day, Martin Luther King Day, President's Day, Memorial Day, Independence Day, Labor Day, Columbus Day, Veteran's Day, Thanksgiving Day, and Christmas Day. When a holiday occurs on a Saturday, federal employees are normally granted the previous Friday as the holiday observance period. When a holiday occurs on a Sunday, federal employees are normally granted the following Monday as the holiday observance period. There are occasions when the FRC East reduces operations in conjunction with the following holidays: Thanksgiving Day, Christmas Day, and New Year's Day, which encompass additional non-holiday work days and weekends. When such a notice is given, the contractor shall modify their support level for the reduced operations.

### 1.4.4 Installation Closure

In the event that an unforeseen installation closure occurs on a regular work day, the Contracting Officer's Representative (COR) will have the option to reschedule the work on any day that is mutually satisfactory to the contractor and the PCO. Additionally, when said closure occurs , personnel shall secure material, equipment, vehicles, and buildings, as determined by assigned Depot personnel, in accordance with current Fleet Readiness Center East Instructions (INSTs) 3140.3C Destructive Weather, 3301.1C Antiterrorism Force Protection Plan, and 5102.2B Unified Emergency Response Plan and operating procedures for the preservation and protection of the property.

### 1.4.5 Severe Weather Closure

In the event of closings due to severe weather or other hazardous situations, notification to contractor employees to take appropriate actions will be given through radio and television stations.

## 1.5 Equipment And Facilities

### 1.5.1 Government Property

The government will provide special tooling, hand tools and ground support equipment not requiring licensing or certification, in the performance of this contract. The government will maintain formal records of government property. The contractor shall exercise reasonable safeguards and care for the government furnished tooling and ground support equipment.

### 1.5.2 Government Automated Data Processing

The government will provide the contractor with computer access to the FRC East In Service Support Workload Management System (ISS-WMS) which is the time and attendance and labor reporting system which shall be used for contractor employee daily time and attendance hours and work/labor reporting.

### 1.5.3 Cybersecurity

Cybersecurity and personnel security requirements for accessing government information technology (IT) systems: The contractor shall comply with the cybersecurity and personnel security requirements for accessing government IT systems specified in the SOW.

### 1.5.4 Contractor Work Spaces

The contractor shall use government provided facilities or off-site contractor facilities for performance of contract requirements only, and contractor management shall ensure that facilities and equipment are not used for the personal gain of contractor employees. Within the production areas of FRC East, as space is available, the government will provide the contractor with a dedicated workspace to be utilized by the Project Manager, and it will include a telephone line, as well as a computer with current applications installed. The government will not furnish office equipment or supplies. The contractor shall provide office supplies and any other resources necessary for the management and operation of the required ESS. All equipment and supplies provided by the contractor shall remain the property of the contractor.

### 1.5.5 Sources Of Supply

The government will provide the components and parts necessary for the contractor to perform the ESS requirements of the contract. The contractor shall not introduce any components or parts for use in performance of ESS.

## 2. APPLICABLE DOCUMENTS

The following documents of the issue listed form a part of this SOW to the extent specified herein. In the event of a conflict between documents referenced herein and the contents of this SOW, the contents of this SOW take precedence. Nothing in this SOW, however, supersedes applicable laws and regulations, unless a specific exemption has been obtained.

### 2.1 Applicable Navy Documents

SPECIFICATIONS

None cited

STANDARD PRACTICES:

Department of Defense (DoD)

| | |
|---|---|
| MIL-STD-1629A | - Procedures for Performing a Failure Mode Effects and Criticality Analysis (FMECA) |
| MIL-STD-31000A | - Technical Data Packages |
| MIL-PRF-32070A | - Performance Specification Test Program Sets 10 Jan 2012 |

(Copies of these documents are available online at http://assistdocs.com/search/search_basic.cfm, or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

NAVAIR Instructions:

| | |
|---|---|
| NAVAIR 00-25-403 | Reliability Centered Maintenance Process |
| NAVAIRINST 5600.14E | - Navy Standards |

(NAVAIR Instructions are downloadable from https://homepages.navair.navy.mil/directives/index.cfm)

OTHER PUBLICATIONS:

United States Code

Title 10, Section 2451 - 2456 - Defense Standardization Program

(U.S. Code is downloadable from http://uscode.house.gov/search/criteria.shtml

Federal Acquisition Regulations (FAR)

| | |
|---|---|
| FAR 52.204-9 | - Personal Identity Verification of Contractor Personnel |
| FAR 52.222-54 | - Employment Eligibility Verification |
| FAR Part 2.101 | - Definitions |
| FAR 31.205-46 | - Travel Costs |

(FAR Clauses are downloadable from http://farsite.hill.af.mil/vffara.htm)

DOD and Department of the Navy (DON) Security and Information Assurance (IA) Instructions, Manuals, Policy Memos, and Guidance Documents

| | |
|---|---|
| DODI 8500.01 | - Cybersecurity dated 14 Mar 2014 |
| DOD 5220.22-M | - National Industrial Security Program Operating Manual, dated 28 Feb 2006 |

The above IA documents are available at http://nawctsd.navair.navy.mil/Resources/Library/IA/Index.cfm.
The NISPOM is available at http://www.dtic.mil/whs/directives/corres/pub1.html

Code of Federal Regulations (CFR)

5 CFR, 731.202 (b) - Criteria for Making Suitability Determinations

The above regulation are available at http://www.access.gpo.gov/nara/cfr/waisidx_09/5cfr731_09.html

| | | |
|---|---|---|
| 22 CFR, Parts 120 - 130 | - | Foreign Relations, Chapter I - Department of State, Subchapter M - International Traffic in Arms Regulations |

(The above regulations are available at http://www.pmddtc.state.gov/regulations_laws/itar.html.

| | | |
|---|---|---|
| 29 CFR 1910 | - | Occupational Safety and Health Standards |
| BS OSHAS 18001:2007 | - | Occupational Safety and Health Management Systems Requirements |

(OSHA standards are downloadable from http://www.osha.gov)

## 2.2 Applicable FRC East Instructions And Notices

| | | |
|---|---|---|
| ASO 5560,6 | - | 10 June 2014 |

The above instruction are available at http://www.

| | | |
|---|---|---|
| 12000,5E | - | Dress Code |
| 5500.1G | - | Security Manual |
| 3140,3C | - | Destructive Weather |
| 3301,1C | - | Anti-terrorism Force Protection Plan |
| 5102,2B | - | Unified Emergency Response Plan |

## 2.3 Non-Government Documents

INDUSTRY STANDARDS

American National Standards Institute (ANSI)/American Society for Quality (ASQ)

| | | |
|---|---|---|
| ANSI/ASQ Q9000-2005 | - | Quality Management Systems - Fundamentals and Vocabulary |
| ANSI/ASQ Q9001-2008 | - | Quality Management Systems – Requirements |
| ANSI/ASQ Q9004-2000 | - | Quality Management Systems - Guidelines for Performance Improvements |
| ANSI/ASQ E14001-2004 | - | International Organization for Standardization Environmental Management Systems – Requirements |
| AS 9100-2009 | - | Aerospace Standard Quality Management |
| ANSI Z41-1999 | - | American National Standards For Personal Protection – Protective Footwear |
| ASTM F-2412-2005 | - | Standard Test Methods for Foot Protection |
| ASTM F-2413-2005 | - | Standard Specification for Performance Requirements for Protective Footwear |
| ASME Y.14.100-2013 | - | American Society of Mechanical Engineers Engineering Drawing Practices 30 July 2013 |
| SAE JA1000-1 | - | FMECA Report |

(Copies of the above documents are available from www.ansi.org or Global Engineering Documents, 15 Inverness Way, East Englewood, CO 80112.)

ANSI/Electronic Industries Alliance (EIA)

| | | |
|---|---|---|
| ANSI/EIA 649-A 2004 | - | National Consensus Standard for Configuration Management |
| ANSI/EIA-748-B | - | Earned Value Management System |
| ANSI/ISEA Z87.1-2010 | - | American National Standard for Occupational and Educational Eye and Face Protection |

(Copies of the above document are available from www.ansi.org or Global Engineering Documents, 15 Inverness Way, East Englewood, CO 80112.)

International Organization for Standardization/International Electro-technical Commission (ISO/EIC)

| | | |
|---|---|---|
| ISO/IEC 27002:2005 | - | Information technology - Security techniques - Code of practice for information security management (Redesignation of ISO/IEC 17799:2005) |

(Copies of this document are available from http://www.ansi.org)

Institute of Electrical and Electronics Engineers (IEEE)/Electronic Industries Alliance (EIA)

| | | |
|---|---|---|
| ANSI/IEEE Std 1008-1987 | - | IEEE Standard for Software Unit Testing |
| IEEE Std 12207-2008, 2nd Edition | - | Systems and Software Engineering – Software life cycle processes |
| IEEE Std 29148-2011 | - | Systems and Software Engineering – Life Cycle Processes – Requirements Engineering |
| IEEE/EIA 12207.1-1997 | - | Standard for Information Technology – Software Life Cycle Process – Life Cycle Data |
| IEEE Std 15288-2015 | - | Systems and Software Engineering – System Life Cycle Process |

(Copies of this document are available from http://www.ieee.org/ or IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854-1331.)

## 3. REQUIREMENTS

### 3.1 General Requirements

The requirements defined herein form the basis for all work to be performed for the government as a part of this ID/IQC. The contractor shall perform engineering support functions on types of aircraft and associated aircraft components, which include, but are not limited to the following: AV-8, C-130, H-1, H-46, H-53, H-60, V-22, MQ-8, RQ-21, F-35, CASS and foreign military sales. ESS shall be performed both off-site at contractor facilities and onsite at government facilities, to include all FRC East detachments and remote sites, inside the continental United States (CONUS) or Outside the Continental United States (OCONUS). The contractor shall have administrative facilities within 30 miles of the FRC East Cherry Point. Approximately 90% of contractor support will be provided on or around the FRC East in Craven County, NC with approximately 80% of that support being onsite at FRC East and the remaining 20% offsite near the FRC East. Additional support shall

occur in such places as MCAS New River, NC (Onslow County); Hulbert Field, FL (Okaloosa County); FRC Southwest (San Diego County CA); Raleigh, NC (Wake County); Willow Grove, PA (Montgomery County); Mayport, FL (Duval County); Norfolk, VA (Virginia Beach); and Yuma, AZ (Yuma County). When task orders require performance in other than these locations, the applicable Wage Determination (WD) will be included in the task order. Contractor work performed under the contract shall be validated and verified by the government unless specifically waived.

### 3.2 Program Management

When required in an individual TO, the contractor shall organize, coordinate, and control the program activities to ensure compliance with the contract requirements and the timely delivery of the required product and services. The contractor shall provide the necessary program management, systems engineering, design engineering, materials, services, equipment, facilities, testing, technical, logistics, and manufacturing support for the efforts as required and specified in the individual TO. The contractor shall measure, monitor, and assess the progress of the work performed and costs incurred under the contract. The contractor shall prepare the Contractor's Progress, Status, and Management Report (CPSMR) in accordance with CDRL.

#### 3.2.1 Mobilization

The mobilization period is for a period not-to-exceed sixty days prior to the Contract Start Date (CSD). This period shall be utilized to allow the contractor to attain logistical competence of requirements, hire and train contractor personnel, obtain appropriate security clearances, and obtain base auto passes. All personnel shall be hired, trained, and in place by the completion of the mobilization period. In cases where the contractor has hired the incumbent's personnel, the contractor shall present documentation to the COR that verifies existing personnel's qualifications are current and valid. The contractor shall assume full responsibility for all ESS, IAW the SOW upon completion of the mobilization period in preparation of the CSD. During this period, the contractor may observe all maintenance tasks being performed by the transitioning contactor as an On-The-Job Training (OJT) function, provided it does not interfere with maintenance services. Lastly, a joint on-site mobilization review shall be conducted approximately two weeks prior to the CSD, and the purpose of the review is to discuss contractor preparation and readiness to assume responsibility for full performance of contractual requirements in support of this SOW.

##### 3.2.1.1 Post Award Conference (PAC)

The first conference will be the PAC, which will be held within fifteen days after contract award; the date shall be coordinated between the contractor and the government. The purpose of the conference shall be to establish the framework for contractor and government interaction during the performance period of the contract, as well as introduce contractor and government personnel, discuss contract overview details of the upcoming effort, and resolve any concerns that may arise as a result of the discussion. Additionally, the contractor shall be prepared to discuss its proposed mobilization approach with the government team. The conference will be held aboard Marine Corps Air Station Cherry Point, in Havelock, NC. The contractor shall prepare presentation materials and conference minutes for the PAC in accordance with CDRL (B002) and CDRL (B003).

The contractor shall prepare a presentation to include:

a. Introduction and contract overview

b. Discuss SOW requirements

c. Discuss data management process

d. Program specific QA (to include Software QA)

e. Program specific OPSEC and cybersecurity implementation plans

f. Updated team contact list (names, IPT memberships, phone numbers, and email address)

g. Metrics collection process, analysis, and reporting

3.2.2 Work Planning and Scheduling (N/A)

3.2.3 Integrated Product Teams (IPTs)

When required in an individual TO, the contractor shall support existing aircraft platform Fleet Support Teams (FSTs)/Project IPT structure for the duration of the contract. IPT membership may consist of multi-functional stakeholders working together with a product or service oriented focus. Each IPT will be empowered to make critical life cycle decisions regarding each product, service or process within their purview. IPTs may be applied at various levels ranging from the overall structure of an organization to informal groups functioning across existing units. Each IPT will maintain a list of membership. Each IPT will consist of government and contractor personnel. IPT minutes will be delivered on a periodic basis in accordance with the CPSMR CDRL (B001).

3.2.4 Subcontractor Management and Reporting

When required in an individual TO, the contractor shall manage all subcontracts. The contractor shall ensure the timely award of subcontracts, the integration of the subcontractor's plans into appropriate schedules, and the monitoring of the subcontractor's staffing plans, to include the execution of those staffing plans to the required levels with the required skills. The contractor shall ensure that the subcontractor's efforts, to include technical, quality, configuration management, and risk processes are accomplished per contract requirements. The contractor shall ensure that subcontractor's use objective criteria to measure performance.

3.2.5 Quality Management

When required in an individual TO, the contractor shall define, document, manage, and apply a quality management process IAW IEEE Std 12207-2008, sections 6.2.5 and 7.2.3; ,ANSI/ASQ Q9001-2008 (or equivalent quality management system); ISO 14001 (Environmental Management Systems) and AS 9100 (Aerospace Quality Management). The quality management processes are required in order to maintain FRC East compliance with ISO 9001, ISO 14001, and AS 9100 quality standards. The contractor may use ANSI/ASQ Q9000-2005 and ANSI/ASQ Q9004-2000 for guidance.

3.2.5.1 Quality Assurance and Applicable Documents/Processes

The Research and Engineering Group (AIR-4.0) at Cherry Point, NC is ISO9001 registered and compliant. In accordance with ISO requirements, individual task orders shall identify procedures to document standardized processes for receipt, assignment, performance and oversight of assigned work, which the task order must conform to during the performance of this requirement. The nature of these ISO procedures is such that they identify applicable technical guidance and standardized output formats for assigned work. The contractor has

the prerogative, within the framework of these identified standards, to utilize personal judgment and professional aptitude in how the specific tasks are accomplished. The contractor must comply with the ISO procedures.

The services under the contract will provide newly developed documents, updated documents, and reports (See Data Preparation and Management Paragraph). These deliverables will require 100% review by the assigned Contracting Officer's Representative or Task Order COR (TOCOR). Each deliverable will be reviewed for schedule and quality compliance. The government will use respective inspection procedures 100% of the time for all contractor rendered services. These inspection procedures will be the primary quality assurance method for monitoring compliance with the quality and schedule requirements.

3.2.5.2 Government Furnished Property (GFP) Inventory (N/A)

3.2.5.3 Control of Government Furnished Information (GFI)

The government shall provide GFI in accordance with section J of the contract and as identified in individual task orders. The contractor shall consider the GFI to be provided "as-is". Additions or modifications to the GFI list shall be mutually agreed to between the contractor and the government. When required in an individual TO, the contractor shall perform the following tasks to control GFI as part of the quality management process:

a. Ensure receipt of GFI

b. Examine upon receipt, consistent with practicality, to detect damage, completeness, and proper type

c. Provide storage that precludes deterioration

d. Observe applicable information security classification regulations

e. Identify and protect from improper use or disposition

f. Perform periodic inventory

g. Validate the accuracy

h. Report IAW the terms and conditions of the contract and the individual TO

3.2.5.4 Government Publication Resolution

The contractor shall identify and notify the government when GFI, to include aircraft documentation, conflicts with another article of documentation. The government reserves the right to determine which documentation is accurate and will reconcile discrepancy accordingly.

3.2.5.5 Contractors Response

The contractor's response to all work requests shall be continual, excluding lunch and scheduled breaks. As needed for emergent specific maintenance tasks and application of direct labor maintenance efforts, the contractor may receive task direction from the government. Overtime, if and when required, will be requested and monitored by the COR and will be reimbursed in accordance with the terms of the contract.

3.2.5.6 Restricted Area Access

Performance of work in restricted areas, such as access to the Flight Line, shall require additional access badge procedures and active Information Technology (IT) Level 2 clearance IAW the latest version of FRC East Instruction 5500.1G Security Manual.

3.2.5.7 Contractor Medical Surveillance Program

The contractor is solely responsible for the protection and treatment of contractor employees suffering on-the-job illness or injury. If a contractor employee departs the FRC East, or ceases work, due to illness or injury, the contractor shall notify, by phone or email, the government supervisor of the respective work area, as well as the COR.

3.2.5.8 Standards of Conduct

The contractor shall not employ any person whose employment under the contract could in any way result in a conflict of interest with the mission of the FRC East. All personnel employed by the contractor in the performance of this effort, or any agent of the contractor entering the government installation shall obey all regulations of the installation and FRC East. The contractor shall be responsible for employee competency and conduct and for taking disciplinary actions with respect to its employees. The removal from the job site of contractor personnel shall not relieve the contractor of the requirement to provide personnel to perform the specified tasks outlined in this SOW. The government reserves the right to deny contractor employee's access to FRC East, if the employee's presence would be detrimental to the FRC East's mission, or performance of work in this SOW. The government reserves the right to require removal of any contractor employee from the job site, if said employee endangers persons, property or mission. In such cases, the COR will advise the contractor of the reason for requesting an employee's removal, or for withdrawal the employee's authorization to enter the installation.

3.2.5.8.1 Work Attire

Contractor employees shall maintain a standard of grooming and personal appearance IAW the latest version of FRC East Instruction 12000.5E Dress Code. The prime contractor's company name must be identified on the outer garment and shall be distinguishable from FRC East employees. The shirt shall have sleeves and be clean, neat, and fit properly. Subcontractor employees shall wear the uniform of the prime contractor, and may, under the prime contractor's company name, list the subcontractor's name. Company identification must be adhered to and visibly displayed on the outer garment in a permanent method (e.g., sewed, embroidered, or inked). All costs associated with the purchase, maintenance, and laundering of uniforms will be at the contractor's expense.

3.2.5.9 Team Lead and Supervisory Assignments

3.2.5.9.1 Contractor Administrative Control and Supervision

Contractor employees shall be under the administrative control and supervision of designated contractor supervisors, site leads, and relief supervisors, and shall perform the tasks prescribed herein. Additionally, the contractor shall select, supervise, and exercise control and direction over their subcontractors under this contract. The contractor shall not supervise, direct, or control the activities of Navy personnel or the employees of any other contractor (other than their subcontractors). The government will not exercise any supervision or control over the contractor's employees in their performance of contractual services under this contract, and the contractor is accountable to the government for the actions of contractor personnel.

3.2.5.9.2 Supervisory Authority

The contractor is responsible for delegating team lead and supervisory authority to its workforce members in order to manage the work and internal QA responsibilities. Therefore, the contractor shall designate one person onsite to act as the primary site supervisor, and shall identify delegated team leads and supervisors to the FRC East COR and applicable TOCORs within 1 working day of changes. Team leads and supervisors shall assume several administrative duties and responsibilities, to include but not limited to: daily verification of hours worked and tasks assigned in the Workload Management System (WMS). Team leaders and/or supervisors will receive tasks from the government via WMS. They shall then assign and manage the tasks to their personnel using the WMS system. All contractor supervisors shall be considered key personnel.

3.2.6 Configuration Management (CM)

When required in an individual TO, the contractor shall define, document, manage, and apply a CM process IAW IEEE Std 12207-2008, section 6.3.5 and 7.2.2; and ANSI/EIA 649-A 2004. The contractor shall place Government Furnished Software (GFS), NDI, and commercial item software, and each item's associated documentation under CM upon receipt. The contractor shall place commercial item software items under CM as "disk image" files of the physical media.

3.2.6.1 Engineering Change Proposal Management

When required in an individual TO, the contractor shall use Engineering Change Proposals (ECPs) to provide engineering analysis and technical studies that propose solutions for requirements specified herein. ECPs relating to CASS Operational Test Program Set (OTPS) product solutions shall reference the Navy OTPS Generic Request For Proposals (NGOR) package at https://pma260.navair.navy.mil. The contractor shall support Test Program Set engineering changes in accordance with performance specification MIL-PRF-32070A. ECPs that require technical data to provide air worthiness Interim Flight Clearance certifications shall be supported. The contractor shall prepare the ECP in accordance with CDRL (A001). A summary status of all ECPs shall be provided IAW CPSMR CDRL (B001).

3.2.7 Data Preparation and Management

When required by the TO, the contractor shall develop, manage, and deliver acceptable contractually required engineering data for all data deliverables. This requirement includes all data deliverables cited in the TO CDRL and all source documents required to prepare the CDRL items for the individual TO. The following requirements shall apply as required and specified in the individual TO:

a. The contractor shall ensure that all data items to be delivered to the government meet the quantity and quality requirements of the TO CDRL.

b. The contractor shall establish data management procedures and policies to provide control and configuration management of all contractually required data. To ensure subcontractors meet the contract data requirements set forth in the TO CDRL, the prime contractor shall maintain control of all data developed by subcontractors.

c. The contractor shall establish and maintain data libraries consisting of technical manuals, system technical description, and software documentation for the data developed for system devices and other data pertaining to systems.

3.2.7.1 Contractor's Progress, Status, and Management Report (CPSMR)

The contractor shall prepare the Contractor's Progress, Status, and Management Report in accordance with CDRL (B001).

3.2.7.2 Presentation Materials

The contractor shall deliver presentation materials including slides, viewgraphs, illustrations, and transparencies in accordance with the "Presentation Material" CDRL, (B002).

3.2.7.3 Conference Minutes

The contractor shall deliver conference minutes in accordance with the "Conference Minutes" CDRL, (B003).

3.2.7.4 Engineering Change Proposal (ECP)

The contractor shall prepare the ECP in accordance with CDRL (A001) as required and specified in the individual TO.

3.2.7.5 Technical Directive (TD)

The contractor shall prepare the Technical Directive (TD) in accordance with CDRL (A002).

3.2.7.6 Operations Security (OPSEC) Plan

The contractor shall prepare the Operation's and Security Plan (OPSEC) in accordance with CDRL (A003).

3.2.7.7 Developmental Drawings/Models and Associated Lists

The contractor shall prepare developmental drawings and models and optional Technical Data Package (TDP) in accordance with CDRL (A004).

3.2.7.8 Total Case Incident Rate and Days Away Restricted Time (TCIR/DART)

The contractor shall deliver a Contractor's Progress, Status and Management Report for Total Case Incidence Rate/Days Away Restricted Time (TCIR/DART) in accordance with CDRL (A005).

3.2.7.9 Software Product Specification (SPS)

The contractor shall prepare the Scientific and Technical Report (Software Product Specification (SPS)) in accordance with CDRL A006.

3.3 Security

The security requirements specified herein shall apply to the contractor and subcontractors. The contractor shall comply with applicable on-site security regulations related to facility access and building access. The

contractor shall safeguard U.S. Government controlled unclassified information (sensitive information) IAW the contractor's locally established security plan (if the contractor already has an established local security plan). The contractor shall enforce these safeguards throughout the life of the contract including the transport and delivery phases and the disposition and storage of controlled unclassified information at contract completion. If the contractor does not have an established security plan that addresses the protection of proprietary, sensitive, or controlled unclassified information, the government will provide a template for the development of an OPSEC plan. Regardless of the contractor's established security plan, the contractor shall comply with the requirements specified in the following subordinate paragraphs.

3.3.1 Cybersecurity and Personnel Security Requirements for Accessing Government Information Technology (IT) Systems – Credentialing Standards (CS)

The contractor shall comply with the CS and personnel security requirements for accessing U.S. Government IT systems specified in the contract. Contractors requiring access to U.S. Government IT systems will be subject to a background check. The contractor shall review and become familiar with the credentialing standards presented in 5 CFR, 731.202 (b) criteria for making suitability determinations, to use as an aid in their employee selection process. The FRC East Security Office will apply the credentialing standards and execute the credentialing process for individual contractors. All contractor employees shall meet Navy network access requirements, which includes completion of the following: System Authorization Access and Request Navy (SAAR-N) OPNAV 5239/14, Sep2011 (or latest version thereof); possible limited use of the SAAR DD Form 2875, Aug 2009 (or latest version thereof); any requisite DoD and DoN Cybersecurity training and certification. The regulation that governs security access is the Department of Defense Instruction 8500.01. The TOCOR is the government sponsor for SAAR forms, unless otherwise designated sponsor is specified by the TOCOR. Contractor personnel shall be in the Joint Personnel Adjudication System (JPAS) or have submitted a Standard Form (SF) 85P to the contractor's Facility Security Officer (FSO) for Information Technology II and III positions. IT I position requires that an SF-86 (Questionnaire for National Security Positions) be provided to FRC East FSO. IT-II & III positions are those that require a contractor to have non privileged access to data or application. An IT-I position shall have root level access to servers and be a privileged user. For purposes of this contract, all contractor personnel required to be IT-II, unless IT-I is required by individual task orders (generally those orders that require a Secret clearance).

3.3.1.1 Government-Issued Personal Identification Credentials

When required in an individual TO, the contractor and subcontractor(s),when applicable, shall account for all forms of U.S Government-provided identification credentials (CAC or U.S. Government-issued identification badges) issued to contractor employees under the contract and shall be visible at all times while contractor employees are on a government facility. The contractor shall be responsible for ensuring that all CACs issued to contractor employees are returned to the Security Department at the facility within forty-eight hours following the completion of the task order, relocation, or termination of an employee, and upon the request of the Contracting Officer, COR or TOCOR. The contracting officer may delay final payment under an individual TO if the contractor or subcontractor fails to comply with these requirements.

3.3.2 Personal Security – Background Check (Physical Access to and Working on DoD Installations

The Common Access Card shall be the principal identity credential for supporting interoperable access to DoD installations, facilities, buildings, controlled spaces, and access to U.S. Government information systems IAW FAR 52.204-9. A national agency check with local agency checks, including credit check (NACLC), will be required for permanent issuance of the credential. The government may issue the credential upon favorable return of the Federal Bureau of Investigations fingerprint check, pending final favorable completion of the

NACLC. Contractors with clearances shall contact the FRC East Security Office to initiate the CAC issuance process. There shall be no additional NACLC, NACI, or equivalent submission for an individual holding a valid national security clearance. Access to restricted areas, controlled unclassified information (sensitive information), or government information technology by contractor personnel shall be limited to those individuals who have been determined trustworthy as a result of the favorable completion of a NACLC or who are under the escort of appropriately cleared personnel. Where escorting such persons is not feasible, a NACLC shall be conducted and favorably reviewed by the appropriate DoD component, agency, or activity prior to permitting such access. For contractor personnel performing sensitive duties including access to controlled unclassified information, the contractor shall use the Standard Form 86 (Questionnaire for National Security Positions) in order to obtain the CAC. The contractor shall submit the Standard Form 86 to the FRC East Security Office for processing. Contractors shall contact the FRC East Security Office to initiate the CAC issuance process. The government reserves the right to deny access to any contractor employee to enter government facilities if his or her presence would be detrimental to the safety and security of said facilities and its workforce, or if the contractor employee does not meet the minimum qualifications outlined herein and specified in Air Station Order 5560.6 – Installation Access 10 June 2014.

The government reserves the right to remove any contractor employee from government facilities who knowingly and willfully endangers persons or property. The government also reserves the right to deny access to government facilities to former Government employees who were terminated from employment for disciplinary reasons. In such cases, the COR or TOCOR will advise the contractor of the reason for the removal or withdrawing his or her authorization to enter the installation.

### 3.3.3 Citizenship – Background Checks

Contractor personnel working at government sites and in the contractor's own facilities supporting government work shall undergo the company internal vetting process prior to gaining access to U.S. Government controlled unclassified information, or performing government-related sensitive duties. All personnel working under this contract shall be U.S. citizens. The use of FRC East legacy assets is prohibited by foreign nationals (FN). Foreign nationals will not be allowed to access any resource of the FRC East legacy network at any time from either the legacy network or from the NMCI network.

### 3.3.4 Personal Security – Background Checks (Contractor Facility)

Contractor personnel working in the contractor's own facilities shall undergo the company internal vetting process prior to gaining access to U.S. Government controlled unclassified information. When required in an individual TO, the contractor shall use the Standard Form 85P (Questionnaire for Public Trust Positions) and Standard Form 86 (Questionnaire for National Security Positions) in order to gain access to U.S. Government controlled unclassified information. The contractor shall submit the Standard Form 85P. When required in an individual TO, the contractor shall ensure that foreign persons, as defined under section 120.16 of the International Traffic and Arms Regulation (ITAR) (22 CFR, Parts 120 - 130), are not given access to U.S. Government controlled unclassified information, sensitive information, defense articles, defense services, or technical data, as defined in the ITAR, Part 120.

### 3.3.5 Unclassified Contractor-Owned Network Security

When required in an individual TO, the contractor shall prevent configuration management control of government controlled unclassified information on contractor-owned unclassified IT network assets (including computer assets used for contractor Teleworkers). Contractor-owned IT network assets shall not be used to process U.S. Government controlled unclassified information (sensitive information). The contractor shall

prevent U.S. Government controlled unclassified information from being placed or stored on peer-to-peer applications or social media applications on contractor owned networks, including teleworker computer assets.

### 3.3.6 Security Requirements for Classified Programs

The overall scope of work requirements for this SOW is unclassified; however, based on the rules and regulations of specific sites or facilities and pursuant to the attached DD 254, DoD Contract Security Classification Specification, contractors may be required to obtain a secret level security clearance. Additionally, some work to be performed may also require a Secret level security clearance. When required in an individual TO, the contractor shall safeguard classified information and meet the security requirements identified in the DD Form 254. The contractor shall enforce these safeguards throughout the life of the contract, including the transport and delivery phases.

### 3.3.7 Operations Security (OPSEC)

When required in an individual TO, the contractor shall provide OPSEC protection for classified information and sensitive information. Security policy, procedures, and requirements for classified information are provided in DOD 5220.22-M. The contractor shall safeguard sensitive and critical program information in accordance with the OPSEC Plan and shall enforce these safeguards throughout the life of the contract from development through support. The contractor shall prepare the Operation's and Security Plan (OPSEC) in accordance with CDRL (A003).

## 3.4 Detailed Engineering Support Requirements

The following sections describe and are representative, though not all encompassing, of the tasks, services, technical data, and information the contractor shall be required to provide in the individual TOs. These services shall be provided as a result of on-site evaluation, technical meeting attendance, responses to telecommunications requests, and changes in technology for the following :

a. Existing systems (O & M, FMS)

b. New systems (APN 1,2,3,4, FMS)

c. Modifications to existing systems (APN 5,FMS)

d. Modification of Existing Support Equipment (APN 7,FMS)

e. New systems research and development (RDTE,FMS)

f. Production Engineering Services (WCF)

g. Engineering Investigations and Health Material Report

h. Travel

i. Material

3.4.1 Existing Systems (O&M, FMS)

When required by individual TOs, the contractor shall provide on-site technical assistance for existing aircraft, aircraft components, aircraft structures, engines and support systems (i.e. Test Program Sets (TPS)).

3.4.1.1 Engineering Data (O&M, FMS)

When required by the TO, the contractor shall develop, manage, and deliver acceptable contractually required engineering data for all types of technical directives (bulletins, changes), technical manuals, drawings, engineering investigations and other documents. The contractor shall provide engineering data IAW with the TDP CDRL (A004).

3.4.1.2 System Installation and Maintenance Technical Assistance (O&M, FMS)

The contractor shall provide organizational, intermediate, and depot level weapon systems engineering consultation and liaison services and technical assistance pertaining to installation and maintenance for systems, subsystems, structures, support equipment, components, and software. These services will be provided as a result of on-site evaluation, technical meeting attendance, responses to telecommunications requests, and changes in technology.

3.4.1.3 Engineering Investigations and Health Material Report (HMR) (O&M, FMS)

The contractor shall perform scientific and engineering investigations, finite element analysis (FEA), health material analysis and studies, and prepare reports and documentation to convey results and findings.

The contractor shall employ sound engineering and scientific practices and shall follow applicable government and industry specifications, standards, handbooks and practices. Reports shall identify alternatives, impacts, cost factors, findings, results, and documentation. Mathematical, numerical, and computer models shall be used where required.

The contractor shall prepare computer aided FEA using current versions of ANSYS, ProEngineer/Mechanica, CATIA and /or other software as identified in specific task orders.

The contractor shall obtain data for studies through investigation, inspection of aircraft and equipment, visits to other contractor and government facilities, data from other contractors, and from government data sources. These studies and investigations may be accomplished in areas such as:

| | | |
|---|---|---|
| Acoustics | Engines | Navigation |
| Aerodynamics | Environmental Control | Operational Test Program Sets |
| Airframes | Failure Analysis | Operations Requirements |
| Avionics | Flight Performance | Power and Wiring |
| Automatic Test Systems | Flutter Dynamics | Quality Assurance |
| Communications | Flying Qualities | Reliability and Maintainability |
| Configuration Control | Hazard Analyses | Software |
| Control Systems | Human Factors/Ergonomics | Stress Analysis |
| Dynamics | Life-Cycle Cost | Structural Technologies |
| Electrical Systems | Materials and Processes | Systems Integration |
| Electromagnetic | Mechanical Design | Vibration |

| | | |
|---|---|---|
| Compatibility | | |

The contractor shall prepare an engineering investigation analysis or HMR IAW the ECP CDRL (A001).

3.4.1.4 Affordable Readiness Tasks (O&M, FMS)

The contractor shall perform a variety of Affordable Readiness (AR) related tasks to include the following:

3.4.1.4.1 Engineering Studies (O&M, FMS)

The contractor shall perform engineering studies, as required, to identify candidates that would improve AR.

3.4.1.4.2 Reliability Centered Maintenance (RCM) (O&M, FMS)

The contractor shall prepare an engineering based model to show benefits of revised Preventive Maintenance (PM) requirements derived from Reliability Centered Maintenance (RCM) analysis. The benefits to be documented are reduced inventory, direct maintenance work hours, and maintenance downtime.

3.4.1.4.3 Preventive Maintenance (PM) (O&M, FMS)

The contractor shall review, study, and/or prepare Preventive Maintenance requirements for government equipment and systems.

3.4.1.4.4 Failure Mode Analysis (O&M, FMS)

The contractor shall perform and/or review Failure Mode Effects Analysis (FMEA) or Failure Mode Effects Criticality Analysis (FMECA). Specifications used to complete FMEA or FMECA are procedures for performing a failure mode, effects and criticality analysis (MIL-STD-1629A) or commercial standards. The contractor shall prepare FMECA reports using SAE JA1000-1 paragraph A.10 standard. MIL–STD–1629A was canceled without replacement in 1998, but nonetheless remains in wide use for military and space applications today and is applicable under this contract.

3.4.1.4.5 Integrated Maintenance Plans (O&M, FMS)

The contractor shall identify and propose PM and inspection tasks to be included in Integrated Maintenance Concept (IMC) plans or Phased Depot Maintenance (PDM) plans.

3.4.1.4.6 Depot Maintenance Requirements (O&M, FMS)

The contractor shall review depot level PM requirements and propose changes to the IMC/PDM plan.

3.4.1.4.7 RCM Review (O&M, FMS)

The contractor shall perform and/or review aircraft RCM data and Powerplant RCM data and follow the guidelines for the Naval Aviation Reliability Centered Maintenance Process (NAVAIR 00-25-403) or commercial standard maintenance program development documents prepared by Maintenance Steering Group (MSG)-3 of Air Transport Association of America.

3.4.1.4.8 Affordable Readiness Defect Analysis (O&M, FMS)

The contractor shall support defect data collection and analysis of existing systems to include the preparation and execution of Age Exploration (AE) requirements. The contractor shall prepare an AR analysis technical report in accordance with the ECP CDRL (A001).

3.4.1.5 Computer Aided Design and Manufacturing (O&M, FMS)

When required in an individual TO, the contractor shall support a system architectural design process. The contractor shall support Computer Aided Design/Computer Aided Manufacturing (CAD/CAM) efforts and projects. CAD/CAM support consists of creation of 3-D models and drawings, database creation/maintenance and CAM programming. The contractor shall prepare drawing packages and associated lists relative to equipment and configuration changes. The contractor shall provide Technical Data Packages (TDP) as required by the TO. If drawing levels are not specified, the contractor shall prepare product level equivalent drawings in accordance with MIL-STD-31000A. All drawings will be completed within the required ISO format provided by the government. The contractor shall use engineering drawing practices and requirements established in ASME Y.14.100-2013 when preparing and revising manual or computer-generated engineering drawings and associated lists.

In accordance with NAVAIRINST 5600.14E , attachment X , the contractor shall digitize drawings in PDF format for an electronically stored database. Data shall be capable of being retrieved using plotters and/or Computer Aided Design and Drafting (CADD) systems in the government specified format. Production level drawings shall be Joint Engineering Data Management Information and Control System (JEDMICS) compliant and include related metadata in the Data File Index Structure (DFIS) format. Deliveries shall use the Compact Disk Engineering Data Exchange (CDEX) method of delivery to facilitate JEDMICS uploads.

The contractor shall prepare drawing packages and 3-D models using current versions of AutoCAD, Solid Edge, ProEngineer, CATIA and/or other software as identified in specific task orders. The contractor shall prepare developmental drawings and models in accordance with CDRL (A004). The contractor shall prepare Technical Data Package in accordance with CDRL (A004).

3.4.1.6 Technical Writing/Editing Tasks (O&M, FMS)

The Contractor shall perform the following technical writing/editing tasks in support of technical data work efforts.

3.4.1.6.1 Technical Manual Source Data (O&M, FMS)

The contract shall prepare technical manual source data such as manuscript data, illustrations, wiring diagrams, parts lists and tables for both new and existing technical manuals. The contractor shall prepare and deliver technical manual source data IAW TDP CDRL (A004).

3.4.1.6.2 Presentation Materials (O&M, FMS)

The contractor shall prepare presentation materials including slides, viewgraphs, illustrations, and transparencies. The contractor shall prepare and deliver data IAW presentation materials CDRL (B002).

3.4.1.6.3 Engineering Data Library (O&M, FMS)

When required in an individual TO, the contractor shall maintain a data library consisting of all system documentation and the system technical description both developed for the system and other data pertaining to the device. The contractor shall review, write, update, and/or maintain engineering technical plans and reports, historical data, military handbooks, directives, standards, equipment specifications, operational descriptions, Naval Air Training and Operating Procedures Standardization (NATOPS) Program, Naval Aviation Technical Information Product (NATIP) and computer documentation. All documents will be generated in editable electronic files in the appropriate format as specified in the task order. The contractor shall develop and

maintain a master listing of all documentation prepared for use in the system as specified and required in the individual TO.

3.4.2 New Systems (APN 1.2.3.4, FMS)

When required by individual TOs, the contractor shall analyze, fabricate, integrate, deliver, and verify new systems

3.4.2.1 System Delivery Services (APN 1,2,3,4, FMS)

The contractor shall provide organizational, intermediate, and depot level weapon systems engineering consultation and liaison services and technical assistance pertaining to delivery of systems, subsystems, structures, support equipment, components, and software. These services shall be provided as a result of on-site evaluation, technical meeting attendance, and responses to telecommunications requests in support of production.

3.4.2.2 Analyses and Technical Studies (APN 1,2,3,4, FMS)

The contractor shall provide analysis and technical studies in support of new systems IAW the ECP CDRL (A001).

3.4.2.2.1 Engineering Change Proposal (ECP) (APN 1,2,3,4, FMS)

The contractor shall identify schedule and cost data to include consideration of maintenance data, fleet reports, logistics plans, and technical and vendor documentation when developing ECPs.

3.4.2.2.2 ECP Configuration Impacts (APN 1,2,3,4, FMS)

The contractor shall determine impact on configuration and fleet/depot operations by incorporation of the proposed changes.

3.4.2.2.3 ECP Implementation (APN 1,2,3,4, FMS)

The contractor shall provide engineering services necessary to implement approved ECPs and prepare configuration changes to systems, subsystems, structures, support equipment, avionics, components and software.

3.4.2.2.4 On-site Production Support (APN 1,2,3,4, FMS)

The contractor shall support the verification, and/or production efforts with qualified technical and engineering personnel on-site. Such on-site support shall be accomplished in an expeditious and timely manner. Personnel providing support shall be familiar with the design data to enable immediate technical, on-site response. These services shall be provided as a result of on-site evaluation, technical meeting attendance, responses to telecommunications requests, and changes in technology in support of production.

3.4.2.2.5 Analysis of Existing Engineering Investigations and Health Material Report (APN 1,2,3,4, FMS)

The contractor shall provide engineering analyses and studies to review and evaluate previously conducted engineering investigations and other documented failure reports on systems, subsystems, support equipment, components, hazards analysis and software for failure trends which are directly attributed to design deficiencies. Upon completion of evaluation, list alternative design changes necessary to restore operational capabilities of production systems, performance, reliability, maintainability, parts interchangeability, or render it capable of

alternative or additional use. The contractor shall prepare an existing engineering investigation analysis or HMR IAW the ECP CDRL (A001).

3.4.2.3 Engineering Investigations and Health Material Report (HMR) of New Production Systems and Components (APN 1,2,3,4, FMS)

The contractor shall perform engineering investigations, analyses, finite element analysis (FEA), health material analysis and studies, and prepare reports and documentation to convey results and findings.

The contractor shall employ sound engineering practices in the preparation of these studies and shall follow applicable government and industry specifications, standards, handbooks and practices. Reports shall identify alternatives, impacts, cost factors, findings, analyses, and documentation. Mathematical, numerical, and computer analyses and models shall be used where required.

The contractor shall prepare computer aided finite element analysis using current versions of ANSYS, ProEngineer/Mechanica, CATIA and /or other software as identified in specific task orders.

The contractor shall obtain data for studies through engineering investigation, synthesis, simulation and analysis of aircraft and equipment, visits to other contractor and government facilities, data from other contractors, and from government data sources. These studies and investigations may be accomplished in areas such as:

| | | |
|---|---|---|
| Acoustics | Engines | Navigation |
| Aerodynamics | Environmental Control | Operational Test Program Sets |
| Airframes | Failure Analysis | Operations Requirements |
| Avionics | Flight Performance | Power and Wiring |
| Automatic Test Systems | Flutter Dynamics | Quality Assurance |
| Communications | Flying Qualities | Reliability and Maintainability |
| Configuration Control | Hazard Analyses | Software |
| Control Systems | Human Factors/Ergonomics | Stress Analysis |
| Dynamics | Life-Cycle Cost | Structural Technologies |
| Electrical Systems | Materials and Processes | Systems Integration |
| Electromagnetic Compatibility | Mechanical Design | Vibration |

The contractor shall prepare an engineering investigation analysis or HMR IAW the ECP CDRL (A001).

3.4.2.4 Affordable Readiness Tasks (APN 1,2,3,4, FMS)

The contractor shall perform a variety of Affordable Readiness (AR) related tasks to include the following:

3.4.2.4.1 Engineering Analysis (APN 1,2,3,4, FMS)

The contractor shall perform engineering analysis, as required, to identify candidates that would improve AR.

3.4.2.4.2 Reliability Centered Maintenance (RCM) (APN 1,2,3,4, FMS)

The contractor shall prepare an engineering based model or analysis tool to show benefits of revised Preventive Maintenance (PM) requirements derived from Reliability Centered Maintenance (RCM) analysis. The benefits to be documented are reduced inventory, direct maintenance work hours, and maintenance downtime.

3.4.2.4.3 Preventive Maintenance (PM) (APN 1,2,3,4, FMS)

The contractor shall review, analyze, and/or prepare Preventive Maintenance requirements for government equipment and systems.

3.4.2.4.4 Failure Mode Analysis (APN 1,2,3,4, FMS)

The contractor shall perform and/or review Failure Mode Effects Analysis (FMEA) or Failure Mode Effects Criticality Analysis (FMECA). Specifications used to complete FMEA or FMECA are procedures for performing a failure mode, effects and criticality analysis (MIL-STD-1629A) or commercial standards. The contractor shall prepare FMECA reports using SAE JA1000-1 paragraph A.10 standard. MIL–STD–1629A was canceled without replacement in 1998, but nonetheless remains in wide use for military and space applications today and is applicable under this contract.

3.4.2.4.5 Integrated Maintenance Plans (APN 1,2,3,4, FMS)

The contractor shall identify and propose PM and inspection tasks to be included in Integrated Maintenance Concept (IMC) plans or Phased Depot Maintenance (PDM) plans.

3.4.2.4.6 Depot Maintenance Requirements (APN 1,2,3,4, FMS)

The contractor shall review depot level PM requirements and propose changes to the IMC/PDM plan.

3.4.2.4.7 RCM Review (APN 1,2,3,4, FMS)

The contractor shall perform and/or review RCM analyses and Powerplant Maintainability/Reliability Analyses and follow the guidelines for the Naval Aviation Reliability Centered Maintenance Process (NAVAIR 00-25-403) or commercial standard maintenance program development documents prepared by Maintenance Steering Group (MSG)-3 of Air Transport Association of America.

3.4.2.5 Computer Aided Design and Manufacturing (APN 1,2,3,4, FMS)

When required in an individual TO, the contractor shall support a system architectural design process. The contractor shall support Computer Aided Design/Computer Aided Manufacturing (CAD/CAM) efforts and projects. CAD/CAM support consists of creation of 3-D models and drawings, database creation/maintenance and CAM programming. The contractor shall prepare drawing packages and associated lists relative to equipment and configuration changes. The contractor shall be capable of drafting conceptual, developmental and product level drawings. If drawing levels are not specified, the contractor shall prepare product level equivalent drawings in accordance with MIL-STD-31000A. All drawings will be completed within the required ISO format provided by the government. The contractor shall use engineering drawing practices and requirements established in ASME Y.14.100-2013 when preparing and revising manual or computer-generated engineering drawings and associated lists.

In accordance with NAVAIRINST 5600.14E , attachment X , the contractor shall digitize drawings in PDF format for an electronically stored database. Data shall be capable of being retrieved using plotters and/or Computer Aided Design and Drafting (CADD) systems in the government specified format. Production level drawings shall be Joint Engineering Data Management Information and Control System (JEDMICS) compliant

and include related metadata in the Data File Index Structure (DFIS) format. Deliveries shall use the Compact Disk Engineering Data Exchange (CDEX) method of delivery to facilitate JEDMICS uploads.

The contractor shall prepare drawing packages and 3-D models using current versions of AutoCAD, Solid Edge, ProEngineer, CATIA and/or other software as identified in specific task orders. The contractor shall prepare developmental drawings and models in accordance with CDRL (A004). The contractor shall prepare Technical Data Package in accordance with CDRL (A004).

3.4.2.6 Technical Writing/Editing Tasks (APN 1,2,3,4, FMS)

The Contractor shall perform the following technical writing/editing tasks in support of technical data work efforts.

3.4.2.6.1 Technical Manual Source Data (APN 1,2,3,4, FMS)

The contract shall prepare technical manual source data such as manuscript data, illustrations, wiring diagrams, parts lists and tables for both new and existing technical manuals. The contractor shall prepare and deliver technical manual source data IAW TDP CDRL (A004).

3.4.2.6.2 Engineering Data Library (APN 1,2,3,4, FMS)

When required in an individual TO, the contractor shall establish and maintain a data library consisting of all system documentation and the system technical description both developed for the system and other data pertaining to the device. The contractor shall review, write, update, and/or maintain engineering technical plans and reports, historical data, military handbooks, directives, standards, equipment specifications, operational descriptions, Naval Air Training and Operating Procedures Standardization (NATOPS) Program, Naval Aviation Technical Information Product (NATIP) and computer documentation. All documents will be generated in editable electronic files in the appropriate format as specified in the task order. The contractor shall develop and maintain a master listing of all documentation developed for use in the system as specified and required in the individual TO.

3.4.3 Modifications to Existing Systems (APN 5, FMS, BP11)

When required by individual TOs, the contractor shall analyze, design, develop, fabricate, integrate, deliver, install, and test, as well as verify and validate modifications to existing systems.

3.4.3.1 System Installation, Modification, and Retrofit Services (APN 5, FMS, BP11)

The contractor shall provide organizational, intermediate, and depot level weapon systems engineering consultation and liaison services and technical assistance pertaining to installation, modification and retrofit for systems, subsystems, structures, support equipment, components, and software. These services shall be provided as a result of on-site evaluation, technical meeting attendance, responses to telecommunications requests, and changes in technology.

3.4.3.2 Analyses and Technical Studies (APN 5, FMS, BP11)

The contractor shall provide analysis and technical studies in support of modifications to existing systems IAW the ECP CDRL (A001).

3.4.3.2.1 Engineering Change Proposal (ECP) (APN 5, FMS, BP11)

The contractor shall identify modification schedules and cost data to include consideration of maintenance data, fleet reports, logistics plans, and technical and vendor documentation when developing ECPs.

3.4.3.2.2 ECP Configuration Impacts (APN 5, FMS, BP11)

The contractor shall determine impact on configuration and fleet/depot operations by incorporation of the proposed changes.

3.4.3.2.3 Product Deficiency Report (APN 5, FMS, BP11)

The contractor shall write technical reports in support of engineering changes on systems, subsystems, avionics, structures, components, support equipment and associated parts which are directly attributed to product deficiencies. The contractor shall prepare a Product and Design Deficiency Report IAW ECP CDRL (A001).

3.4.3.2.4 ECP Implementation (APN 5, FMS, BP11)

The contractor shall provide engineering services necessary to implement approved ECPs and prepare configuration changes to systems, subsystems, structures, support equipment, avionics, components and software.

3.4.3.2.5 ECP Configuration Changes (APN 5, FMS, BP11)

Configuration changes will be implemented by technical directives CDRL (A002) such as but not limited to airframe changes, avionics changes, accessory changes, aircrew systems changes, support equipment changes, and Rapid Action Minor Engineering Changes (RAMECs).

3.4.3.2.6 On-site Production Support (APN 5, FMS, BP11)

The contractor shall support the validation, verification, and/or production efforts with qualified technical and engineering personnel on-site. Such on-site support shall be accomplished in an expeditious and timely manner. Personnel providing support shall be familiar with the design data to enable immediate technical, on-site response.

3.4.3.2.7 Analysis of Existing Engineering Investigations and Health Material Report (HMR) (APN 5, FMS, BP11)

The contractor shall provide engineering analyses and studies to review and evaluate previously conducted engineering investigations, hazards analysis and other documented failure reports on systems, subsystems, support equipment, components, and software for failure trends which are directly attributed to design deficiencies. Upon completion of evaluation, list alternative design modifications necessary to restore operational capabilities, performance, reliability, maintainability, parts interchangeability, or render it capable of alternative or additional use. The contractor shall prepare an existing engineering investigation analysis or HMR IAW the ECP CDRL (A001).

3.4.3.3 Affordable Readiness Tasks (APN 5, FMS, BP11)

The contractor shall perform a variety of Affordable Readiness (AR) related tasks to include the following:

3.4.3.3.1 Engineering Analysis (APN 5, FMS, BP11)

The contractor shall perform engineering analysis, as required, to identify candidates that would improve AR.

3.4.3.3.2 Reliability Centered Maintenance (RCM) (APN 5, FMS, BP11)

The contractor shall prepare an engineering based model or analysis tool to show benefits of revised Preventive Maintenance (PM) requirements derived from Reliability Centered Maintenance (RCM) analysis. The benefits to be documented are reduced inventory, direct maintenance work hours, and maintenance downtime.

3.4.3.3.3 Preventive Maintenance (PM) (APN 5, FMS, BP11)

The contractor shall review, analyze, and/or prepare Preventive Maintenance requirements for government equipment and systems.

3.4.3.3.4 Failure Mode Analysis (APN 5, FMS, BP11)

The contractor shall perform and/or review Failure Mode Effects Analysis (FMEA) or Failure Mode Effects Criticality Analysis (FMECA). Specifications used to complete FMEA or FMECA are procedures for performing a failure mode, effects and criticality analysis (MIL-STD-1629A) or commercial standards. The contractor shall prepare FMECA reports using SAE JA1000-1 paragraph A.10 standard. MIL–STD–1629A was canceled without replacement in 1998, but nonetheless remains in wide use for military and space applications today and is applicable under this contract.

3.4.3.3.5 Integrated Maintenance Plans (APN 5, FMS, BP11)

The contractor shall identify and propose PM and inspection tasks to be included in Integrated Maintenance Concept (IMC) plans or Phased Depot Maintenance (PDM) plans.

3.4.3.3.6 Depot Maintenance Requirements (APN 5, FMS, BP11)

The contractor shall review depot level PM requirements and propose changes to the IMC/PDM plan.

3.4.3.3.7 RCM Review (APN 5, FMS, BP11)

The contractor shall perform and/or review RCM analyses and Powerplant Maintainability/Reliability Analyses and follow the guidelines for the Naval Aviation Reliability Centered Maintenance Process (NAVAIR 00-25-403) or commercial standard maintenance program development documents prepared by Maintenance Steering Group (MSG)-3 of Air Transport Association of America.

3.4.3.4 Computer Aided Design and Manufacturing (APN 5, FMS, BP11)

When required in an individual TO, the contractor shall support a system architectural design process. The contractor shall support Computer Aided Design/Computer Aided Manufacturing (CAD/CAM) efforts and projects. CAD/CAM support consists of creation of 3-D models and drawings, database creation/maintenance and CAM programming. The contractor shall prepare drawing packages and associated lists relative to equipment and configuration changes. The contractor shall be capable of drafting conceptual, developmental and product level drawings. If drawing levels are not specified, the contractor shall prepare product level equivalent drawings in accordance with MIL-STD-31000A. All drawings will be completed within the required ISO format provided by the government. The contractor shall use engineering drawing practices and requirements established in ASME Y.14.100-2013 when preparing and revising manual or computer-generated engineering drawings and associated lists.

In accordance with NAVAIRINST 5600.14E , attachment X , the contractor shall digitize drawings in PDF format for an electronically stored database. Data shall be capable of being retrieved using plotters and/or Computer Aided Design and Drafting (CADD) systems in the government specified format. Production level drawings shall be Joint Engineering Data Management Information and Control System (JEDMICS) compliant and include related metadata in the Data File Index Structure (DFIS) format. Deliveries shall use the Compact Disk Engineering Data Exchange (CDEX) method of delivery to facilitate JEDMICS uploads.

The contractor shall prepare drawing packages and 3-D models using current versions of AutoCAD, Solid Edge, ProEngineer, CATIA and/or other software as identified in specific task orders. The contractor shall prepare developmental drawings and models in accordance with CDRL (A004). The contractor shall prepare Technical Data Package in accordance with CDRL (A004).

3.4.3.5 Technical Writing/Editing Tasks (APN 5, FMS, BP11)

The Contractor shall perform the following technical writing/editing tasks in support of technical data work efforts.

3.4.3.5.1 Technical Manual Source Data (APN 5, FMS, BP11)

The contract shall prepare technical manual source data such as manuscript data, illustrations, wiring diagrams, parts lists and tables for both new and existing technical manuals. The contractor shall prepare and deliver technical manual source data IAW TDP CDRL (A004).

3.4.3.5.2 Presentation Materials (APN 5, FMS, BP11)

The contractor shall prepare presentation materials including slides, viewgraphs, illustrations, and transparencies. The contractor shall prepare and deliver data IAW presentation materials CDRL (B002).

3.4.3.5.3 Engineering Data Library (APN 5, FMS, BP11)

When required in an individual TO, the contractor shall establish and maintain a data library consisting of all system documentation and the system technical description both developed for the system and other data pertaining to the device. The contractor shall review, write, update, and/or maintain engineering technical plans and reports, historical data, military handbooks, directives, standards, equipment specifications, operational descriptions, Naval Air Training and Operating Procedures Standardization (NATOPS) Program, Naval Aviation Technical Information Product (NATIP) and computer documentation. All documents will be generated in editable electronic files in the appropriate format as specified in the task order. The contractor shall develop and maintain a master listing of all documentation developed for use in the system as specified and required in the individual TO.

3.4.4 Modification of Existing Support Equipment (APN 7, FMS)

When required by individual TOs, the contractor shall analyze, design, develop, fabricate, integrate, deliver, install, and test, as well as verify and validate modifications to existing support equipment.

3.4.4.1 Support Equipment Installation, Modification, Refurbishment, and Support Services (APN 7, FMS)

The contractor shall provide organizational, intermediate, and depot level weapon systems design engineering consultation and liaison services and technical assistance pertaining to installation, modification, refurbishment, and support of support equipment, and software. These services shall be provided as a result of on-site evaluation, technical meeting attendance, responses to telecommunications requests, and changes in technology.

3.4.4.2 Analyses and Technical Studies (APN 7, FMS)

The contractor shall provide analysis and technical studies in support of support equipment and modifications IAW the ECP CDRL (A001).

3.4.4.2.1 Engineering Change Proposal (ECP) (APN 7, FMS)

The contractor shall identify modification schedule and fabrication schedules, and cost data.

3.4.4.2.2 ECP Configuration Impacts (APN 7, FMS)

The contractor shall determine impact on configuration and fleet/depot operations by incorporation of the proposed changes.

3.4.4.2.3 ECP Consideration (APN 7, FMS)

The contractor shall include consideration of maintenance data, fleet reports, logistics plans, and technical and vendor documentation when developing ECPs.

3.4.4.2.4 Product Design Deficiency Report (APN 7, FMS)

The contractor shall write technical reports in support of engineering changes on systems, subsystems, avionics, structures, components, support equipment and associated parts which are directly attributed to design deficiencies. The contractor shall prepare a Product and Design Deficiency Report IAW ECP CDRL (A001).

3.4.4.2.5 ECP Implementation (APN 7, FMS)

The contractor shall provide engineering services necessary to implement approved ECPs and prepare configuration changes to systems, subsystems, structures, support equipment, avionics, components and software.

3.4.4.2.6 ECP Configuration Changes (APN 7, FMS)

Configuration changes will be implemented by technical directives CDRL (A002) such as but not limited to airframe changes, avionics changes, accessory changes, aircrew systems changes, support equipment changes, and Rapid Action Minor Engineering Changes (RAMECs).

3.4.4.2.7 Prototype Support Equipment Systems (APN 7, FMS)

The contractor shall provide a prototype to demonstrate, support equipment systems including hardware and government owned software.

3.4.4.2.8 On-site Production Support (APN 7, FMS)

The contractor shall support the prototype, validation, verification, and/or production efforts with qualified technical and engineering personnel on-site. Such on-site support shall be accomplished in an expeditious and timely manner. Personnel providing support shall be familiar with the design data to enable immediate technical, on-site response.

3.4.4.2.9 Analysis of Existing Engineering Investigations and Health Material Report (HMR) (APN 7, FMS)

The contractor shall provide engineering analyses and studies to review and evaluate previously conducted engineering investigations, hazards analysis and other documented failure reports on systems, subsystems, support equipment, components, and software for failure trends which are directly attributed to design deficiencies. Upon completion of evaluation, list alternative design modifications necessary to restore

operational capabilities, performance, reliability, maintainability, parts interchangeability, or render it capable of alternative or additional use. The contractor shall prepare an existing engineering investigation analysis or HMR IAW the ECP CDRL (A001).

3.4.4.3 Affordable Readiness Tasks (APN 7, FMS)

The contractor shall perform a variety of Affordable Readiness (AR) related tasks to include the following:

3.4.4.3.1 Engineering Analysis (APN 7, FMS)

The contractor shall perform engineering analysis, as required, to identify candidates that would improve AR.

3.4.4.3.2 Reliability Centered Maintenance (RCM) (APN 7, FMS)

The contractor shall prepare an engineering based model or analysis tool to show benefits of revised Preventive Maintenance (PM) requirements derived from Reliability Centered Maintenance (RCM) analysis. The benefits to be documented are reduced inventory, direct maintenance work hours, and maintenance downtime.

3.4.4.3.3 Preventive Maintenance (PM) (APN 7, FMS)

The contractor shall review, analyze, and/or prepare Preventive Maintenance requirements for government equipment and systems.

3.4.4.3.4 Failure Mode Analysis (APN 7, FMS)

The contractor shall perform and/or review Failure Mode Effects Analysis (FMEA) or Failure Mode Effects Criticality Analysis (FMECA). Specifications used to complete FMEA or FMECA are procedures for performing a failure mode, effects and criticality analysis (MIL-STD-1629A) or commercial standards. The contractor shall prepare FMECA reports using SAE JA1000-1 paragraph A.10 standard. MIL–STD–1629A was canceled without replacement in 1998, but nonetheless remains in wide use for military and space applications today and is applicable under this contract.

3.4.4.3.5 Integrated Maintenance Plans (APN 7, FMS)

The contractor shall identify and propose PM and inspection tasks to be included in Integrated Maintenance Concept (IMC) plans or Phased Depot Maintenance (PDM) plans.

3.4.4.3.6 Depot Maintenance Requirements (APN 7, FMS)

The contractor shall review depot level PM requirements and propose changes to the IMC/PDM plan.

3.4.4.3.7 RCM Review (APN 7, FMS)

The contractor shall perform and/or review RCM analyses and Powerplant Maintainability/Reliability Analyses and follow the guidelines for the Naval Aviation Reliability Centered Maintenance Process (NAVAIR 00-25-403) or commercial standard maintenance program development documents prepared by Maintenance Steering Group (MSG)-3 of Air Transport Association of America.

3.4.4.3.8 Affordable Readiness Defect Analysis (APN 7, FMS)

The contractor shall support defect data collection and analysis to include the development and execution of Age Exploration (AE) requirements. The contractor shall prepare an AR analysis scientific and technical report in accordance with the ECP CDRL (A001).

3.4.4.4 Technical Writing/Editing Tasks (APN 7, FMS)

The Contractor shall perform the following technical writing/editing tasks in support of technical data work efforts.

3.4.4.4.1 Technical Manual Source Data (APN 7, FMS)

The contract shall prepare technical manual source data such as manuscript data, illustrations, wiring diagrams, parts lists and tables for both new and existing technical manuals. The contractor shall prepare and deliver technical manual source data IAW TDP CDRL (A004).

3.4.4.4.2 Presentation Materials (APN 7, FMS)

The contractor shall prepare presentation materials including slides, viewgraphs, illustrations, and transparencies. The contractor shall prepare and deliver data IAW presentation materials CDRL (B002).

3.4.5 New Systems Research and Development (RDTE, FMS)

When required by individual TOs, the contractor shall analyze, design, develop, fabricate, integrate, deliver, install, and test, as well as verify and validate new systems research and development.

3.4.5.1 Analyses and Technical Studies (RDTE, FMS)

The contractor shall provide analysis and technical studies in support of new systems design IAW the ECP CDRL (A001).

3.4.5.1.1 Engineering Change Proposal (ECP) (RDTE, FMS)

The contractor shall identify schedule and cost data.

3.4.5.1.2 ECP Configuration Impacts (RDTE, FMS)

The contractor shall determine impact on configuration and fleet/depot operations by incorporation of the proposed design.

3.4.5.1.3 ECP Consideration (RDTE, FMS)

The contractor shall consider maintenance data, fleet reports, logistics plans, and technical and vendor documentation when developing ECPs.

3.4.5.1.4 ECP Implementation (RDTE, FMS)

The contractor shall provide engineering services necessary to implement approved ECPs and prepare configuration changes to systems, subsystems, structures, support equipment, avionics, components and software.

3.4.5.1.5 ECP Configuration Changes (RDTE, FMS)

Configuration changes will be implemented by technical directives CDRL (A002) such as but not limited to airframe changes, avionics changes, accessory changes, aircrew systems changes, support equipment changes, and Rapid Action Minor Engineering Changes (RAMECs).

3.4.5.2 Prototype New Systems (RDTE, FMS)

The contractor shall design, develop, prototype and/or demonstrate new aircraft systems, engine systems, and support equipment systems including hardware and government owned software.

3.4.5.3 Configuration Change Data (RDTE, FMS)

Technical data developed to document configuration changes will be validated and verified by the government unless specifically waived.

3.4.5.4 On-site Production Support (RDTE, FMS)

The contractor shall support the prototype, validation, verification, and/or production efforts with qualified technical and engineering personnel on-site. Such on-site support shall be accomplished in an expeditious and timely manner. Personnel providing support shall be familiar with the design data to enable immediate technical, on-site response.

3.4.5.5 Analysis of Existing Engineering Investigations and Health Material Report (HMR) (RDTE, FMS)

The contractor shall provide engineering analyses and studies to review and evaluate previously conducted engineering investigations, hazards analysis and other documented failure reports on systems, subsystems, support equipment, components, and software for failure trends which are directly attributed to design deficiencies. Upon completion of evaluation, list alternative design modifications necessary to restore operational capabilities, performance, reliability, maintainability, parts interchangeability, or render it capable of alternative or additional use. The contractor shall prepare an existing engineering investigation analysis or HMR IAW the ECP CDRL (A001).

3.4.5.6 Affordable Readiness Tasks (RDTE, FMS)

The contractor shall perform a variety of Affordable Readiness (AR) related tasks to include the following:

3.4.5.6.1 Engineering Analysis (RDTE, FMS)

The contractor shall perform engineering analysis, as required, to identify candidates that would improve AR.

3.4.5.6.2 Reliability Centered Maintenance (RCM) (RDTE, FMS)

The contractor shall prepare an engineering based model or analysis tool to show benefits of revised Preventive Maintenance (PM) requirements derived from Reliability Centered Maintenance (RCM) analysis. The benefits to be documented are reduced inventory, direct maintenance work hours, and maintenance downtime.

3.4.5.6.3 Preventive Maintenance (PM) (RDTE, FMS)

The contractor shall review, analyze, and/or prepare Preventive Maintenance requirements for government equipment and systems.

3.4.5.6.4 Failure Mode Analysis (RDTE, FMS)

The contractor shall perform and/or review Failure Mode Effects Analysis (FMEA) or Failure Mode Effects Criticality Analysis (FMECA). Specifications used to complete FMEA or FMECA are procedures for

performing a failure mode, effects and criticality analysis (MIL-STD-1629A) or commercial standards. The contractor shall prepare FMECA reports using SAE JA1000-1 paragraph A.10 standard. MIL–STD–1629A was canceled without replacement in 1998, but nonetheless remains in wide use for military and space applications today and is applicable under this contract.

3.4.5.6.5 Integrated Maintenance Plans (RDTE, FMS)

The contractor shall identify and propose PM and inspection tasks to be included in Integrated Maintenance Concept (IMC) plans or Phased Depot Maintenance (PDM) plans.

3.4.5.6.6 Depot Maintenance Requirements (RDTE, FMS)

The contractor shall review depot level PM requirements and propose changes to the IMC/PDM plan.

3.4.5.6.7 RCM Review (RDTE, FMS)

The contractor shall perform and/or review RCM analyses and Powerplant Maintainability/Reliability Analyses and follow the guidelines for the Naval Aviation Reliability Centered Maintenance Process (NAVAIR 00-25-403) or commercial standard maintenance program development documents prepared by Maintenance Steering Group (MSG)-3 of Air Transport Association of America.

3.4.5.7 Computer Aided Design and Manufacturing (RDTE, FMS)

When required in an individual TO, the contractor shall support a system architectural design process. The contractor shall support Computer Aided Design/Computer Aided Manufacturing (CAD/CAM) efforts and projects. CAD/CAM support consists of creation of 3-D models and drawings, database creation/maintenance and CAM programming. The contractor shall prepare drawing packages and associated lists relative to equipment and configuration changes. The contractor shall be capable of drafting conceptual, developmental and product level drawings. If drawing levels are not specified, the contractor shall prepare product level equivalent drawings in accordance with MIL-STD-31000A. All drawings will be completed within the required ISO format provided by the government. The contractor shall use engineering drawing practices and requirements established in ASME Y.14.100-2013 when preparing and revising manual or computer-generated engineering drawings and associated lists.

In accordance with NAVAIRINST 5600.14E, attachment X, the contractor shall digitize drawings in PDF format for an electronically stored database. Data shall be capable of being retrieved using plotters and/or Computer Aided Design and Drafting (CADD) systems in the government specified format. Production level drawings shall be Joint Engineering Data Management Information and Control System (JEDMICS) compliant and include related metadata in the Data File Index Structure (DFIS) format. Deliveries shall use the Compact Disk Engineering Data Exchange (CDEX) method of delivery to facilitate JEDMICS uploads.

The contractor shall prepare drawing packages and 3-D models using current versions of AutoCAD, Solid Edge, ProEngineer, CATIA and/or other software as identified in specific task orders. The contractor shall prepare developmental drawings and models in accordance with CDRL (A004). The contractor shall prepare Technical Data Package in accordance with CDRL (A004).

3.4.5.8 Technical Writing/Editing Tasks (RDTE, FMS)

The Contractor shall perform the following technical writing/editing tasks in support of technical data work efforts.

3.4.5.8.1 Technical Manual Source Data (RDTE, FMS)

The contract shall prepare technical manual source data such as manuscript data, illustrations, wiring diagrams, parts lists and tables for both new and existing technical manuals. The contractor shall prepare and deliver technical manual source data IAW TDP CDRL (A004).

3.4.5.8.2 Presentation Materials (RDTE, FMS)

The contractor shall prepare presentation materials including slides, viewgraphs, illustrations, and transparencies. The contractor shall prepare and deliver data IAW presentation materials CDRL (B002).

3.4.5.8.3 Engineering Data Library (RDTE, FMS)

When required in an individual TO, the contractor shall establish and maintain a data library consisting of all system documentation and the system technical description both developed for the system and other data pertaining to the device. The contractor shall review, write, update, and/or maintain engineering technical plans and reports, historical data, military handbooks, directives, standards, equipment specifications, operational descriptions, Naval Air Training and Operating Procedures Standardization (NATOPS) Program, Naval Aviation Technical Information Product (NATIP) and computer documentation. All documents will be generated in editable electronic files in the appropriate format as specified in the task order. The contractor shall develop and maintain a master listing of all documentation developed for use in the system as specified and required in the individual TO.

3.4.6 Production Engineering Services (WCF)

The contractor shall provide FRC-East production support engineering services including:

a. On-Site Production Shop support will take place within the Fleet Readiness Center industrial complex. This includes support to any of the aircraft, engine or component rework facilities/shop areas.

b. Trouble shooting of aircraft, engines, support equipment, and related systems

c. Preparation of Local Engineering Specifications (LES), Temporary Engineering Instructions (TEI), responses to Material Review Board (MRB) requests, Service Requests, Maintenance Repair Overhaul Deviation Request (MDR), and other production requests for engineering support

d. Design, modification, maintenance, and documentation of production support systems

e. Provide calibration support to FRC East in accordance with the Metrology Engineering production support processes.

3.4.6.1 Weapon Systems Engineering Services (WCF)

The contractor shall provide analyses and technical studies in support of weapon systems, installation, modification, and repair requirements IAW the ECP CDRL (A001). The contractor shall provide depot level weapon systems design engineering consultation and liaison services and technical assistance pertaining to installation, modification, refurbishment, and maintenance for systems, subsystems, structures, support

equipment, components, and software. These services will be provided as a result of on-site evaluation, technical meeting attendance, responses to telecommunications requests, and changes in technology.

3.4.6.2 Quality Engineering Services (WCF)

The contractor shall provide professional industrial and quality engineering services in support of manufacturing and quality production processes performed at FRC East. The contractor shall provide analysis and technical studies in support of manufacturing and quality production processes IAW the ECP CDRL (A001).

3.4.6.2.1 Process and Workflow Analyses (WCF)

The contractor shall analyze and identify process and workflow constraints and/or problems and develop engineering solutions based on a thorough knowledge of industrial engineering techniques, practices and the application of progressive methods in the field of manufacturing and quality engineering.

3.4.6.2.2 Optimize Production Process (WCF)

The contractor shall design the quality assurance and industrial manufacturing methodologies and systems to optimize production process performance.

3.4.6.2.3 Production Methods Deployment (WCF)

The contractor shall determine methods, systems, operations, equipment, procedures and tools to be deployed via engineering requirements to fulfill the production needs and ensure quality products.

3.4.6.2.4 Production Process and Workflow Oversight (WCF)

The contractor shall provide manufacturing and quality engineering oversight of production processes and workflow to ensure that operations continue to perform as intended by the original engineering requirements.

3.4.6.2.4.1 Process Control Charts and Feedback (WCF)

The contractor shall work with Quality Assurance and Examination and Evaluation personnel to establish process control charts and feedback mechanisms.

3.4.6.2.4.2 Process Evaluation (WCF)

The contractor shall design the methodologies used to evaluate process data to decide what processes are within control limits and what processes require attention to maintain and improve quality or productivity.

3.4.6.3 Production Analyses and Trade Studies (WCF)

The contractor shall provide production analysis and technical studies in support of systems design and systems modifications.

3.4.6.3.1 ECP Configuration Impacts

The Contractor shall determine impact on configuration and fleet/depot operations by incorporation of the proposed changes IAW the ECP CDRL (A001).

3.4.6.3.2 Depot System Design Deficiency Report (WCF)

The contractor shall research, develop and write technical reports in support of engineering changes on depot systems which are directly attributed to design deficiencies. The contractor shall prepare a Product and Design Deficiency Report IAW ECP CDRL(A001).

3.4.6.3.3 Depot Systems (WCF)

The contractor shall provide design, development, prototyping and/or demonstrating depot systems including hardware and government owned software.

3.4.6.3.4 On-site Production Support (WCF)

The contractor shall support the prototype, validation, verification, and/or production efforts with qualified technical and engineering personnel on-site. Such on-site support shall be accomplished in an expeditious and timely manner. Personnel providing support shall be familiar with the design data to enable immediate technical, on-site response.

3.4.7 Engineering Investigations and Health Material Report (HMR) (WCF)

The contractor shall perform scientific and engineering investigations, analyses, evaluations, finite element analysis (FEA), health material analysis and studies, and prepare reports and documentation to convey results and findings.

The contractor shall employ sound engineering and scientific practices in the development of these studies and shall follow applicable government and industry specifications, standards, handbooks and practices. Reports shall identify alternatives, impacts, cost factors, findings, analyses, and documentation. Mathematical, numerical, and computer analyses and models shall be used where required.

The contractor shall prepare computer aided finite element analysis using current versions of ANSYS, ProEngineer/Mechanica, CATIA and /or other software as identified in specific task orders.

The contractor shall obtain data for studies through research, investigation, experimentation, inspection of aircraft and equipment, visits to other contractor and government facilities, data from other contractors, and from government data sources. These studies and investigations may be accomplished in areas such as:

| | | |
|---|---|---|
| Acoustics | Engines | Navigation |
| Aerodynamics | Environmental Control | Operational Test Program Sets |
| Airframes | Failure Analysis | Operations Requirements |
| Avionics | Flight Performance | Power and Wiring |
| Automatic Test Systems | Flutter Dynamics | Quality Assurance |
| Communications | Flying Qualities | Reliability and Maintainability |
| Configuration Control | Hazard Analyses | Software |
| Control Systems | Human Factors/Ergonomics | Stress Analysis |
| Dynamics | Life-Cycle Cost | Structural Technologies |
| Electrical Systems | Materials and Processes | Systems Integration |

| | | |
|---|---|---|
| Electromagnetic Compatibility | Mechanical Design | Vibration |

The contractor shall prepare an engineering investigation analysis or HMR IAW the ECP CDRL (A001).

3.4.7.1 Affordable Readiness Tasks (WCF)

The contractor shall perform a variety of Affordable Readiness (AR) related tasks to include the following:

3.4.7.1.1 Engineering Analysis (WCF)

The contractor shall perform engineering analysis, as required, to identify candidates that would improve AR.

3.4.7.1.2 Reliability Centered Maintenance (RCM) (WCF)

The contractor shall prepare an engineering based model or analysis tool to show benefits of revised Preventive Maintenance (PM) requirements derived from Reliability Centered Maintenance (RCM) analysis. The benefits to be documented are reduced inventory, direct maintenance work hours, and maintenance downtime.

3.4.7.1.3 Preventive Maintenance (PM) (WCF)

The contractor shall review, analyze, and/or prepare Preventive Maintenance requirements for government equipment and systems.

3.4.7.1.4 Failure Mode Analysis (WCF)

The contractor shall perform and/or review Failure Mode Effects Analysis (FMEA) or Failure Mode Effects Criticality Analysis (FMECA). Specifications used to complete FMEA or FMECA are procedures for performing a failure mode, effects and criticality analysis (MIL-STD-1629A) or commercial standards. The contractor shall prepare FMECA reports using SAE JA1000-1 paragraph A.10 standard. MIL–STD–1629A was canceled without replacement in 1998, but nonetheless remains in wide use for military and space applications today and is applicable under this contract.

3.4.7.1.5 Integrated Maintenance Plans (WCF)

The contractor shall identify and propose PM and inspection tasks to be included in Integrated Maintenance Concept (IMC) plans or Phased Depot Maintenance (PDM) plans.

3.4.7.1.6 Depot Maintenance Requirements (WCF)

The contractor shall review depot level PM requirements and propose changes to the IMC/PDM plan.

3.4.7.1.7 RCM Review (WCF)

The contractor shall perform and/or review RCM analyses and Powerplant Maintainability/Reliability Analyses and follow the guidelines for the Naval Aviation Reliability Centered Maintenance Process (NAVAIR 00-25-403) or commercial standard maintenance program development documents prepared by Maintenance Steering Group (MSG)-3 of Air Transport Association of America.

3.4.7.1.8 Affordable Readiness Defect Analysis (WCF)

The contractor shall support defect data collection and analysis to include the development and execution of Age Exploration (AE) requirements. The contractor shall prepare an AR analysis scientific and technical report in accordance with the ECP CDRL (A001).

3.4.8 Computer Aided Design and Manufacturing (WCF)

When required in an individual TO, the contractor shall support a system architectural design process. The contractor shall support Computer Aided Design/Computer Aided Manufacturing (CAD/CAM) efforts and projects. CAD/CAM support consists of creation of 3-D models and drawings, database creation/maintenance and CAM programming. The contractor shall prepare drawing packages and associated lists relative to equipment and configuration changes. The contractor shall be capable of drafting conceptual, developmental and product level drawings. If drawing levels are not specified, the contractor shall prepare product level equivalent drawings in accordance with MIL-STD-31000A. All drawings will be completed within the required ISO format provided by the government. The contractor shall use engineering drawing practices and requirements established in ASME Y.14.100-2013 when preparing and revising manual or computer-generated engineering drawings and associated lists.

In accordance with NAVAIRINST 5600.14E , attachment X , the contractor shall digitize drawings in PDF format for an electronically stored database. Data shall be capable of being retrieved using plotters and/or Computer Aided Design and Drafting (CADD) systems in the government specified format. Production level drawings shall be Joint Engineering Data Management Information and Control System (JEDMICS) compliant and include related metadata in the Data File Index Structure (DFIS) format. Deliveries shall use the Compact Disk Engineering Data Exchange (CDEX) method of delivery to facilitate JEDMICS uploads.

The contractor shall prepare drawing packages and 3-D models using current versions of AutoCAD, Solid Edge, ProEngineer, CATIA and/or other software as identified in specific task orders. The contractor shall prepare developmental drawings and models in accordance with CDRL (A004). The contractor shall prepare Technical Data Package in accordance with CDRL (A004).

3.4.9 Technical Writing/Editing Tasks (WCF)

The Contractor shall perform the following technical writing/editing tasks in support of technical data work efforts.

3.4.9.1 Technical Manual Source Data (WCF)

The contract shall prepare technical manual source data such as manuscript data, illustrations, wiring diagrams, parts lists and tables for both new and existing technical manuals. The contractor shall prepare and deliver technical manual source data IAW TDP CDRL (A004).

3.4.9.2 Presentation Materials (WCF)

The contractor shall prepare presentation materials including slides, viewgraphs, illustrations, and transparencies. The contractor shall prepare and deliver data IAW presentation materials CDRL (B002).

3.4.9.3 Engineering Data Library (WCF)

When required in an individual TO, the contractor shall establish and maintain a data library consisting of all system documentation and the system technical description both developed for the system and other data pertaining to the device. The contractor shall review, write, update, and/or maintain engineering technical plans and reports, historical data, military handbooks, directives, standards, equipment specifications, operational descriptions, Naval Air Training and Operating Procedures Standardization (NATOPS) Program, Naval Aviation Technical Information Product (NATIP) and computer documentation. All documents will be generated in editable electronic files in the appropriate format as specified in the task order. The contractor shall develop and maintain a master listing of all documentation developed for use in the system as specified and required in the individual TO.

3.4.10 Travel

Travel may be required in support of tasks identified in the individual Task Orders. All required CONUS and OCONUS travel shall be approved by the COR or TOCOR in advance. Reimbursement for travel shall be in accordance with the contract. When contractor personnel performing required support remain overnight at locations other than assigned station, the contractor will be reimbursed for travel costs in accordance with FAR 31.205-46 on the basis of actual costs incurred for transporting necessary personnel up to the extent allowed a government employee under the Department of Defense Joint Travel Regulations. Maximum allowable rates can be found at http://www.dtic.mil/perdiem/perdiemrates.html. Travel and per diem costs incurred in the replacement of personnel will not be reimbursed when such replacement is accomplished at the contractor's or employee's convenience.

3.4.11 Material

If required, Material will be identified in the Task Order and reimbursed in accordance with the contract.

3.5 General System Engineering Support Services

When required in an individual TO, the contractor shall use the system engineering services to define the requirements for the system, to transform the requirements into an effective product or process, to use the product or process to provide the required functionality, and to sustain the provisions of that functionality.

3.5.1 Systems Requirements Definition

When required in an individual TO, the contractor shall define, document, manage, and apply a requirements definition process IAW IEEE Std 15288-2015, section 6.4.3.

3.5.2 Systems Requirements Analysis

When required in an individual TO, the contractor shall define, document, manage, and apply a requirements analysis process IAW IEEE Std 12207-2008, section 6.4.2; and IEEE 29148-2011 sections 5.2 and 9.4. The contractor shall analyze the requirements specified in the individual TO to determine further decomposition and derivation of lower level functional requirements. The contractor shall analyze the interaction between systems, subsystems, and components to derive the functional requirements. The contractor shall decompose and derive requirements IAW the criteria within IEEE Std 29148-2011, sections 5.2 and 9.4.

3.5.3 Software Requirements Analysis

When required in an individual TO, the contractor shall define, document, manage, and apply software requirements analysis. The contractor shall analyze and define software requirements. The purpose of the software requirements analysis process is to establish the requirements of the software elements of the system.

3.5.4 Software Architectural Design

When required in an individual TO, the contractor shall define, document, control, maintain, and implement a software architectural design.

3.5.4.1 Software Architectural Design Verification

When required in an individual TO, the contractor shall perform software architectural design verification IAW IEEE Std 12207-2008, section 7.2.4.3.2.2.

3.5.4.2 Software Detailed Design

When required in an individual TO, the contractor shall define, document, control, maintain, and implement software detailed design. The purpose of the software detailed design process is to provide a design for the software that implements, and can be verified against the requirements and the software architecture, and is sufficiently detailed to permit coding and testing.

3.5.5 Implementation

When required in an individual TO, the contractor shall define, document, manage, and apply an implementation process IAW IEEE Std 15288-2015, section 6.4.7.

3.5.5.1 Software Implementation

When required in an individual TO, the contractor shall define, document, control, maintain, and perform software implementation IAW IEEE Std 12207-2008, section 7.1.1.

3.5.5.2 Software Unit Construction and Testing

The purpose of the software construction process is to produce both source code and executable software units that properly reflect the software design. When required in an individual TO, the contractor shall define, document, control, maintain, and implement software construction IAW IEEE Std 12207-2008, section 7.1.5. The contractor shall accomplish software unit testing IAW ANSI/IEEE Std 1008-1987.

3.5.5.2.1 Software Code Verification

When required in an individual TO, the contractor shall perform software code verification IAW IEEE Std 12207-2008, section 7.2.4.3.2.3.

3.5.5.3 Software Integration

When required in an individual TO, the contractor shall define, document, control, maintain, and implement software integration IAW IEEE Std 12207-2008, section 7.1.6.

3.5.5.4 Software Integration Verification

When required in an individual TO, the contractor shall perform software integration verification IAW IEEE Std 12207-2008, section 7.2.4.3.2.4.

3.5.5.5 Software Qualification Testing

When required in an individual TO, the contractor shall define, document, control, maintain, and implement software qualification testing IAW IEEE Std 12207-2008, section 7.1.7.

3.5.6 System Integration

When required in an individual TO, the contractor shall define, document, manage, and apply a system integration process IAW IEEE Std 12207-2008, section 6.4.5.

3.5.7 System Qualification Testing

When required in an individual TO, the contractor shall define, document, manage, and apply a system verification process IAW IEEE Std 12207-2008, section 6.4.6.

3.5.8 Device Transition

When required in an individual TO, the contractor shall define, document, manage, and apply a system transition and installation process IAW IEEE Std 15288-2015, section 6.4.10.

3.5.9 Software Installation

When required in an individual TO, the contractor shall define, document, control, maintain, validate, and implement software installation IAW IEEE Std 12207-2008, section 6.4.7.

3.5.10 Software Product

When required in an individual TO, the contractor shall define, document, control, maintain, validate, and prepare the system software IAW IEEE/EIA 12207.1-1997, sections 6.7, 6.13, and 6.24. The contractor shall deliver the software and databases required to meet the performance defined in the individual TO. The contractor shall deliver the non-commercial item software with corresponding source code, build tools, build procedures, executable code, configuration information, and build procedures. The contractor shall deliver the commercial item software with the associated vendor manuals, documentation, physical media, warranty information, licenses, and installation procedures. The contractor shall transfer to the government at device acceptance, the commercial item software licenses. The contractor shall prepare the Scientific and Technical Report (Software Product Specification (SPS)) in accordance with CDRL (A006) as required and specified in the individual TO.

3.5.11 System Validation

When required in an individual TO, the contractor shall define, document, manage, and apply a system validation process IAW IEEE Std 15288-2015, section 6.4.8.

3.5.11.1 Software Acceptance Support

When required in an individual TO, the contractor shall define, document, control, and implement software acceptance support IAW IEEE Std 12207-2008, section 6.4.8.

3.5.12 Electromagnetic Environmental Effects (E3) Engineering

When required by the individual TO, the contractor shall support FRC East E3 control planning into the design approach, hardware selection, and the integration of products into the system site electromagnetic environment.

3.5.12.1 Electrostatic Discharge (ESD) Management

When required in an individual TO, the contractor shall support FRC East ESD control program for the protection of ESD sensitive electrical and electronic parts, assemblies, and equipment from damage due to ESD. Applicable functions where ESD control elements are to be applied are design, production, inspection and test,

storage and shipment, installation, maintenance, and repair. The ESD control program elements to be considered are classification, design protection for system equipment only, protected areas, handling procedures, protective coverings, training, marking of hardware, documentation, packaging, quality system requirements, and audits and reviews.

3.5.13 Reliability and Maintainability (R&M) Engineering

When required in an individual TO, the contractor shall support FRC East active and effective R&M programs that meet program objectives. The R&M programs shall ensure that the system equipment, including commercial items, NDI, and system equipment meet the R&M requirements.

3.5.13.1 Failure Reporting, Analysis and Corrective Action System (FRACAS)

When required in an individual TO, the contractor shall establish and maintain a closed loop FRACAS that applies to the failures that occur throughout development, manufacture, handling, checkout, and testing of the system equipment, including subcontracted items. Failure analysis shall be of sufficient depth as to permit the identification of failure causes and the corrective actions. The contractor shall collect maintainability data (e.g., failure isolation, repair, and checkout times) as an integral part of the FRACAS. The contractor shall present a summary of the R&M data collected under FRACAS at the scheduled program reviews as required and specified in the individual TO.

3.5.14 Human Systems Engineering (HSE)

When required in an individual TO, the contractor shall integrate human factors into the system design. Objectives shall include balance of system performance and cost of ownership by ensuring that the system design is compatible with the capabilities and limitations of the personnel who will operate and maintain the item. Cognitive HSE design decisions shall be reflected in the supporting instructional strategies and materials.

3.5.15 Interoperability

When required in an individual TO, the contractor shall define, document, control, maintain, and implement Interoperability.

3.5.16 Conferences and Reviews

When required in an individual TO, the contractor shall participate in conferences and reviews to be held at government facilities. The specific locations, dates, and duration of the conferences shall be as specified in the individual TO. Conferences and reviews will be chaired by a government representative. The contractor shall be prepared to explain the reasoning, assumptions, and methodologies in arriving at particular conclusions, recommendations, or alternatives in the accomplishment of the tasks required by the individual TO. The contractor shall prepare drawings and other data to aid in the presentations. The contractor shall have key personnel and support available to support the conference. Subcontractors shall attend conferences and reviews when required to address key elements. The contractor shall develop technical data to support entry and exit criteria for the reviews as required and specified in the individual TO. The contractor shall prepare the conference minutes CDRL (B003), and presentation material CDRL (B002) for the conferences as required and specified in the individual TO. Except where noted herein, conferences and reviews shall be considered fulfilled when the following items are completed.

a. A formal meeting has been conducted and the conference and reviews are presented to the government.

b. Topics required for discussion and presentation have been covered.

c. Action items requiring contractor response have been resolved.

d. The government has accepted the conference minutes.

3.5.16.1 System Requirements Review/System Functional Review (SRR/SFR)

When required in an individual TO, the contractor shall participate in an SRR/SFR. The SRR/SFR is a multi-disciplined product and process assessment to ensure that the system under review can proceed into preliminary design, and that the system functional requirements, including derived and decomposed requirements, are defined and consistent with program cost, schedule, risk, and other system constraints. The SRR/SFR shall assess the system functional requirements and ensure that the required system performance is fully defined and is traceable to the functional baseline as required and specified in the individual TO. As required in the individual TO, topics of discussion and presentation at the SRR/SFR may include, but are not limited to, the following:

a. Identify and discuss resource availability to support the schedule

b. Provide a complete program organizational structure

c. Identify relevant contractor subject matter experts to be used during development and testing

d. Show that the functional requirements are traceable to the system requirements

e. Show that the explicit and derived requirements are quantified and documented

f. Address the following applicable functional areas:

    a. Electromagnetic Environment Effects (E3)

    b. Human Systems Integration

    c. Environment, Safety, and Occupational Health

    d. Logistics/Life-Cycle Support Requirements

    e. Technical Documentation

    f. Interoperability

    g. Cybersecurity

    h. Quality Management

    i. Configuration Management

    j. Security

    k. Data Management

    l. Safety Requirements

m. Present the results of a comprehensive risk assessment for design, integration, and test

3.5.16.2 IPT Meetings

When required by individual TOs, the contractor shall attend and participate in IPT meetings. IPT meetings shall provide a forum suitable for maintaining a continuous interchange of ideas, issues, and to identify and resolve potential problem areas. IPT meetings shall be documented in the conference minutes and included within CPSMR CDRL (B001).

3.5.16.3 In-Process Reviews (IPRs)

When required by individual TOs, the contractor shall conduct IPRs. IPRs shall provide attendees with information regarding the status and planned activities of the program. IPRs shall include as required and specified in the individual TO the following:

a. A presentation on the status of the overall program, including the system design (hardware and software), QMS, CM, E3, testing, and production

b. Review of software status

c. Review of FRACAS data, when applicable

d. Review of the program schedule status

e. Review of program risks

3.5.16.4 Preliminary Design Review (PDR)

When required by individual TOs, the contractor shall participate in a PDR. The purpose of the PDR is for the government to formally review the activities and work products generated during the performance of the preliminary design stage in order to develop the allocated baseline, and to verify that the approach for the system design is ready to proceed into the detailed design phase. The PDR shall present and describe the training system design and program status, and address the design changes made to the preliminary design proposed. As required in the individual TO, topics of discussion and presentation at the PDR may include, but are not limited to, the following:

a. system hardware and software design, including:

b. Models

c. Communication and audio systems

d. Network

e. Interoperability design and implementation

f. Software tools

g. Use of developmental and Commercial and Non-developmental (CaNDI) software and databases

h. Software development files

i. Hardware and software interfaces

j. Design modularity and commonality

k. Electromagnetic Environmental Effects (E3) impacts

l. R&M, and systems safety program progress

m. Logistics design aspects and concerns

n. Parts management program progress and identification of long lead time items

o. Test and evaluation

p. Security and cybersecurity, including systems security design, security test approach, security training approach, and any other security and cybersecurity relevant information.

q. Program problem and risk areas, recommended solutions, and evaluation of alternatives

3.5.16.5 Critical Design Review (CDR)

When required by an individual TO, the contractor shall participate in a CDR. The purpose of the CDR is for the government to formally review the activities and work products generated during the performance of the critical design stage in order to develop the product baseline, and to verify that the system is ready to proceed into the hardware/software coding, assembly, and integration phase. The CDR shall present and describe the finalized system design and program status. As required in the individual TO, topics of discussion and presentation at the CDR may include, but are not limited to, the following:

a. system hardware and software design, including:

b. Models

c. Communication and audio systems

d. Network

e. Interoperability design and implementation

f. Software tools

g. Use of developmental and Commercial and Non-developmental (CaNDI) software and databases

h. Software development files

i. Hardware and software interfaces

j. Design modularity and commonality

k. E3 impacts

l. R&M and system safety programs progress

m. Logistics design aspects and concerns

n. Parts management program status

o. Test and evaluation

p. Security and cybersecurity, including updates to the systems security design, security test approach, security training approach, and any other security and cybersecurity relevant information.

q. Program problem and risk areas, recommended solutions, and evaluation of alternatives

3.5.16.6 Test Readiness Review Conferences

When required by an individual TO, TRRs shall be supported. The purpose of the TRRs is to determine the system's readiness for government testing.

3.5.16.7 Technical Documentation Reviews

When required in the individual TO, the contractor shall participate in recurring technical documentation reviews. The purpose of the technical documentation reviews is to review and discuss the progress of the technical manual, training documentation, and technical data development.

3.5.16.8 Production Readiness Review (PRR)

When required in the individual TO, the contractor shall participate in PRRs to determine whether the production hardware and software are ready for efficient and economical production. The PRR shall discuss the manufacturing and T&E (Production Testing) program during the PRR as required and specified in the individual TO. The PRR shall demonstrate that production engineering challenges are resolved, production processes and controls are in place, parts and materials are on hand, and testing methods are provided.

3.5.17 Commercial and Non-Developmental Items (CaNDI)

When required in an individual TO, the contractor shall fulfill the requirements of the contract through acquisition of CaNDI to the maximum extent practicable. CaNDI proposed by the contractor will be reviewed by the government to determine whether each proposed CaNDI component is, in fact, CaNDI. The government will also determine the extent to which the proposed CaNDI is practicable for off-the-shelf use within the government's logistical environment. The government reserves the right to perform inspections and tests as deemed necessary to verify the practicability of items proposed as CaNDI for off-the-shelf use in the system.

3.5.18 Parts Standardization

The contractor shall comply with the Defense Standardization Program (U.S. Code Title 10, Section 2451 - 2456), which requires the achievement of the highest practicable degree in the standardization of items and practices used through the DOD as required and specified in the individual TO. The parts standardization program defines the management controls to minimize the number of unique parts in the design and maximize the use of government standard parts.

3.5.18.1 Replacement of Parts

In order to determine that government authorized parts and materials only have been used, the government reserves the right to inspect parts and materials used to design and manufacture the equipment. Inspection may

be performed by the government at any time until acceptance on-site, or through the end of any warranty period. Use of unauthorized parts and materials shall result in replacement by the contractor with an authorized part or material and correction of the appurtenant documentation and manuals at no additional cost to the government.

### 3.5.19 System Safety Tasks

When required in an individual TO, the contractor shall comply with FRC East safety and health programs that meet program objectives and ensures that the system meets the system safety requirements as required and specified in the individual TO. The main objectives of the programs shall be to identify, document, analyze, and resolve (i.e., eliminate or reduce the associated risk to a level acceptable to the Government) safety hazards to both personnel and equipment.

#### 3.5.19.1 Personal Protective Equipment (PPE)

The contractor shall provide the minimum serviceable PPE for their personnel. The minimum required PPE consists of: safety glasses with side shields, hearing protection and safety shoes. The contractor shall ensure that their employees are trained in the use and limitations of their PPE and that all other requirements of the Occupations Health Standards 29 CFR 1910 are met, which can be found on the OSHA web site.

##### 3.5.19.1.1 Hazard Prevention

Occupational Health and Safety Management Systems – Requirements (BS OHSAS 18001:2007 – B.3.6 International Labor Organization (ILO)-OSH Section 3.10) hazard prevention recommends the implementation of preventive and protective measures to control hazards and risks. Minimum PPE is required in all designated areas, unless specifically exempted. Aisles that cut through industrial shops are included in the PPE requirement. Employees who sponsor and/or escort visitors shall ensure visitors are equipped with the requisite PPE.

##### 3.5.19.1.2 Safety Glasses

Safety glasses shall meet ANSI Z 87.1 requirements. Side shields/side protection is required. Sun glasses, personal glasses, and safety glasses with side shields removed do not qualify. Sunglasses, even if ANSI approved, are not to be worn inside or in lieu of approved safety glasses.

##### 3.5.19.1.3 Stamp in Shoes

The contractor shall check employee's shoes to ensure they have the correct stamp for compliance.

Acceptable stamps for shoes include the following:

a. Male/Female ANSI Z41 1/75 C/75
b. Male ASTM F2413-05 M I/75 C/75
c. Male ASTM F2412-05 M 175 C/75
d. Female ASTM F2413-05 F 1/75 C/75
e. Female ASTM F2412-05 F 1/75 C/75

##### 3.5.19.1.4 Hazardous Materials

Contractor personnel may come into contact with hazardous materials during performance, specifically labs and production environments.

3.5.19.2 Safety Training

All personnel working on site at FRC East and remote sites under this contract shall document annually receipt and review of the information listed in the FRC East Information Brochure. The brochure is available for viewing under Visitor Information at http://www.navair.navy.mil/frce/visinfo.html. The contractor shall provide prospective employees with a means of completing the initial review prior to FRC East entrance. Contractor supervisors shall attend the FRC East environmental management system annual refresher and convey the information to their personnel.

3.5.19.3 Voluntary Protection Program

The FRC East is participating in the Occupational Safety and Health Administration (OSHA) Voluntary Protection Program (VPP). One of the requirements for participation in the program is that the FRC East collects and retains data from all contractors whose total workforce consisted of ten or more employees at any time during the past calendar year and who are performing work on-site at FRC East totaling 1,000 or more hours in any quarter (refer to https://www.osha.gov/dcsp/vpp/). The required data includes the contractor's Total Case Incidence Rate (TCIR) for recordable nonfatal injuries and illnesses and their Days Away from Restricted work activity, and/or job Transfer (DART) rate for the past three calendar years. This information will be placed on file at the FRC East for possible OSHA review under the VPP Program. The contractor shall deliver a Contractor's Progress, Status and Management Report for Total Case Incidence Rate/Days Away Restricted Time (TCIR/DART) in accordance with CDRL (A005).

3.5.19.4 Foreign Object Damage (FOD)

Foreign Object (FO) is defined as any article or substance alien to the aircraft or assembly. Foreign Object Damage (FOD) is the damage that occurs due to FOs. All FRC East work sites shall be maintained in such a manner as to prevent FOD to aircraft and aircraft components. Work sites shall be kept clean at all times. All debris, scrap material, tools, and equipment shall be cleared from the work site as work progresses.

3.5.19.5 Safety Incident Reporting

In cases where a contractor supervisor determines that solving a safety or health problem is beyond his control, but within the control of the FRC East, the contractor shall notify the COR. All contractor employees performing work on site at FRC East shall immediately report any safety, security, or environmental violation to their COR, as well as the cognizant FRC East Safety/Security/Environmental Office. The initial FRC East notification can be made via phone or e-mail and shall include as many applicable details as possible (date, time, identification numbers, tags, company, etc.). This initial notification shall be made as soon as possible. A safety incident will require the contractor to complete and submit an incident memo to the appropriate point of contact identified in the contract, with a copy to FRC East Safety Office within twenty-four hours of the incident. The incident memo shall include the full name of the person involved in the incident, age, sex, job title, the name of the employing company and the contract number and title. In addition, the memo shall include the severity of the illness or injury, indirect cause(s) of the accident and whether personal protective equipment was available and used.

3.5.20 Product Assurance Audits and Inspections

The contractor shall support performance of audits and 100% inspections on products, including product assurance programs such as reliability, maintainability, parts management, safety, ESD control, CM, and QMS,

at any time during the performance of the contract. The contractor shall make non-deliverable product assurance documentation and data available to the government during these audits and inspections as required and specified in the individual TO. The government will provide notice to the contractor prior to conducting audits and inspections.

### 3.5.21 Total Ownership Costs

When required in the individual TO, the contractor shall control Total Ownership Costs (TOC) by minimizing the Logistics Cost Drivers specified in the TOs.

#### 3.5.21.1 Supportability Analysis

When required in the TO, the contractor shall consider logistics and supportability related requirements in the conduct of design trade studies as an element affecting cost, schedule, and performance. The contractor shall develop and maintain a top down allocation of equipment reliability, maintainability, and operation and support cost performance requirements while modeling the impact of design decisions on the support processes required for maintaining and sustaining the equipment in its operational use. Decision and analysis, including any supporting justification, as substantiation of trade studies and subsequent design decisions as they relate to maintenance planning shall be presented in design reviews and meetings.

#### 3.5.21.2 Technical Documentation (TD)

When required in the individual TO, the contractor shall prepare and deliver comprehensive TD which shall consist of all documentation and drawings required to operate, repair, and modify a system consistent with the government's maintenance concept. The TD shall include drawings, Operation and Maintenance (O&M) instructions, instructor operator utilization instructions, planned maintenance data, and Commercial Off-The-Shelf (COTS) technical support data. The contractor shall develop operation, maintenance, and training documentation that supports the training courses as required by the individual TO. The TD to be provided in the individual TO may include, but is not limited to, the following:

a. O&M Manual

b. Planned Maintenance System (PMS) documentation

c. COTS manuals and associated supplemental data

##### 3.5.21.2.1 Technical Documentation Validation

When required in the individual TO, the contractor shall conduct validation of the technical documentation. Validation of technical documentation is a process by which the contractor tests a technical manual for accuracy and adequacy. The contractor shall accomplish validation by actual utilizing the operation and maintenance instructions on the system/equipment for which the technical manual is written. Validation procedures will be witnessed by government representative(s).

### 3.5.22 Packaging Handling Storage and Transportation (PHS&T)

When required in the individual TO, the contractor shall package for shipment, and send to the installation site, the product and all associated ancillary materials. The contractor shall design the packaging to avoid loss due to the elements, pilferage, and hazards of handling and storage, and shall be strong enough to minimize breakage and leakage. The contractor shall mark using bold lettering, packaging for fragile items or items requiring special handling, and shall use commercial shipping . . Additionally, the contractor shall insure the product during shipment.

## 3.6 Contractor Transition Period

If the incumbent contractor is an unsuccessful offeror in any subsequent government solicitation for Engineering Support Services (ESS), or the contract is terminated for any reason, the contractor shall, during the successor contractor's mobilization period, provide all reasonable support to the government and the successor contractor to ensure an orderly transition and minimize any impact on operational readiness. The incumbent contractor shall provide the successor contractor access to the site and to all technical documentation and publications on a not-to-interfere basis during the transition period. Additionally, the successor contractor shall also be permitted to observe incumbent contractor personnel performing ESS on a not-to-interfere basis during the transition period. The incumbent contractor shall negotiate with the successor on transfer of earned worker benefits for personnel who wish to work for the successor contractor. The contractor shall retain full responsibility for all ESS IAW the SOW until completion of the phase-out period.

## 3.7 Personal Qualifications (ESS)

### 3.7.1 Personnel Resumes

The contractor is responsible for providing fully qualified and competent employees to perform the scope of the effort set forth herein. The government reserves the right to review the resumes of contractor employees for the purpose of ascertaining required qualifications. Accordingly, the contractor shall furnish such resumes upon request by the COR or Contracting Officer. An asterisk (*) denotes key labor categories.

### 3.7.2 Engineer / Scientist IV (*)

Perform tasks with little or no guidance. Has demonstrated knowledge in area of engineering expertise. Applies engineering principles to investigate, analyze, plan, and design, develop, implement, test or evaluate military weapons systems. Reviews and prepares engineering and technical analyses, reports, change proposals, and other technical documentation. Applies engineering experience to perform functions such as system integration, configuration management, quality assurance testing, or acquisition and resource management. Analyzes designs, develops, implements, tests, or evaluates software, components, or systems related to engineering or functional requirements of military weapons systems, associated support systems.

Education: BS or BA degree in a "Relevant Engineering/Science Field". Degree must be from an accredited college or university.

Experience: At least ten (10) years of experience in a "Relevant Engineering/Science Field".

### 3.7.3 Engineer / Scientist II (*)

Applies engineering principles to investigate, analyze, plan, design, develop, implement, test, or evaluate military weapons systems. Reviews and prepares engineering and technical analyses, reports, change proposals, and other technical documentation. Applies engineering experience to perform functions such as system integration, configuration management, quality assurance testing, or acquisition and resource management. Analyzes, designs, develops, implements, tests, or evaluates software, components, or systems related to engineering or functional requirements of military weapons systems, associated support systems, or management information systems.

Education: BS or BA degree in a "Relevant Engineering/Science Field". Degree must be from an accredited college or university.

Experience: At least three (3) years of experience in a "Relevant Engineering/Science Field".

3.7.4 Engineer / Scientist I

Applies engineering principles to investigate, analyze, plan, design, develop, implement, test, or evaluate military weapons systems. Reviews and prepares engineering and technical analyses, reports, change proposals, and other technical documentation. Applies engineering experience to perform functions such as system integration, configuration management, quality assurance testing, or acquisition and resource management. Analyzes, designs, develops, implements, tests, or evaluates software, components, or systems related to engineering or functional requirements of military weapons systems, associated support systems, or management information systems.

Education: BS or BA degree in a "Relevant Engineering/Science Field". Degree must be from an accredited college or university.

Experience: At least one (1) year of experience in a "Relevant Engineering/Science Field".

3.7.5 Engineering / Electronics Technician, Senior (*)

Leads the execution of complex tasks. Applies engineering techniques, principles and precedents to develop, design, modify, install, test, evaluate, or operate electrical, electronic, avionics, mechanical, communications, stores, armament/ordnance, or related data processing systems for military weapon systems or associated support equipment or components. Reviews, analyzes, develops, prepares or applies engineering, technical or maintenance specifications, policies, standards, or procedures. Organizes, analyzes, and prepares reports or presentations of technical data and information. Plans and performs tests and evaluations of systems equipment or components. Compiles, processes, reduces, or analyzes test data results.

Education: High School diploma or GED; Completion of a technical school, trade school, or advanced armed services technical school curriculum or course of training in electricity, electronics, avionics, mechanics, armaments/ordnance, or engineering technology; or completion of at least 30 semester hours of course studies at an accredited college or university in an engineering, scientific, or technical curriculum.

Experience: At least ten (10) years of experience in performing engineering technician functions in a "Relevant Technical Discipline".

3.7.6 Engineering / Electronics Technician

Applies engineering techniques, principles and precedents to develop, design, modify, install, test, evaluate, or operate electrical, electronic, avionics, mechanical, communications, stores, armament/ordnance, or related data processing systems for military weapon systems or associated support equipment or components. Reviews, analyzes, develops, prepares or applies engineering, technical or maintenance specifications, policies, standards, or procedures. Organizes, analyzes, and prepares reports or presentations of technical data and information. Plans and performs tests and evaluations of systems equipment or components. Compiles, processes, reduces, or analyzes test data results.

Education: High School diploma or GED; Completion of a technical school, trade school, or advanced armed services technical school curriculum or course of training in electricity, electronics, avionics, mechanics, armaments/ordnance, or engineering technology; or completion of at least 30 semester hours of course studies at an accredited college or university in an engineering, scientific, or technical curriculum.

Experience: At least four (4) years of experience in performing engineering technician functions. At least 1 year of engineering technical functional experience shall have consisted of performing engineering/technical functions in a "Relevant Technical Discipline".

3.7.7 Drafter / CAD Operator III (Service Contract Act 30063)

This operator prepares complete sets of complex drawings or computer models that include multiple views, detail drawings, and assembly drawings. Drawings or models include complex design features that require considerable drafting skill to visualize and portray. Assignments regularly require the use of mathematical formulas to draw land contours or to compute weights, center of gravity, load capacities, dimensions, quantities of material, etc. The Draft/CAD Operator works from sketches, computer models, and verbal information supplied by an engineer, architect, or designer to determine the most appropriate views, detail drawings, and supplementary information needed to complete assignments. This operator selects required information from computer programs, and internet sites, precedents, manufacturers' catalogs, and technical guides. This operator independently resolves most of the problems encountered. Supervisor or design originator may suggest methods of approach or provide advice on unusually difficult problems. Typical assignments include:

a. Prepares complete sets of drawings of test equipment to be manufactured from layouts, models, or sketches. Several cross-sectional and subassembly drawings are required. From information supplied by the design originator and from technical handbooks and manuals, this operator describes dimensions, tolerances, fits, fabrication techniques, and standard parts to use in manufacturing the equipment.

b. From electronic schematics, information as to maximum size, and manuals giving dimensions of standard parts, determines the arrangement and prepares drawing of printed circuit boards.

c. From precedents, drafting standards, and established practices, prepares final construction drawings for floodgates, navigation locks, dams, bridges, culverts, levees, channel excavations, dikes and berms, prepares boring profiles, typical cross-sections, and land profiles; and delineates related topographical details as required.

d. Prepares final drawings for street paving and widening or for water and sewer lines having complex trunk lines; reduces field notes and calculates true grades. From engineering designs, lays out plan, profile and detail appurtenances required; and notifies supervisor of conflicting details in design.

Education: High School diploma or GED; Vocational training commensurate with Department of Labor functional description.

Experience: Adequate experience performing the duties of the labor category as described in the Department of Labor functional description.

3.7.8 Computer Scientist, Senior

Applies knowledge of computer science concepts and techniques, mathematics, and methods of statistical analysis to develop and apply automated solutions to engineering, scientific, or business data acquisition and management problems. Uses mathematical, statistical, and scientific logic to identify conceptual or theoretical solutions to problems of automated data processing (ADP) hardware or software systems design and operations. Analyzes and formulates architectural and functional specifications, interfaces, and data structures. Researches applications for ADP hardware, software, and operating systems. Writes, modifies, and adapts computer programs in machine level, assembly, and third or fourth generation programming languages. May act as team

leader or supervisor, developing project plans, guidelines, or controls, and directing the work of other computer scientists, specialists, and technicians.

Education: BS or BA degree in a Computer Science or "Relevant Technical Discipline". ALLOWABLE SUBSTITUTION: The equivalent combination of education, technical certifications or training, or work experience. Degree must be from an accredited college or university.

Experience: At least three (3) years of computer science experience. At least one (1) year of the foregoing experience shall have been as a team leader or supervisor. At least one (1) year of the foregoing experience shall have consisted of performing computer scientist functions in a "Relevant Technical Discipline".

### 3.7.9 Operations Research Analyst

Applies scientific, mathematics, and statistical methodologies to the study and analysis of technological problems in relation to engineering and scientific development of processes, systems, and equipment. Uses mathematical and computerized modeling, and other analytical techniques, to design procedures for and execute experiments, test, and evaluations or weapons systems or equipment.

(a) Education: BS or BA degree in Operations Research, Computer Science, Mathematics, Statistics, Physics, or Engineering.

(b) Experience: No experience required.

### 3.7.10 Computer Programmer II

At this level, initial assignments are designed to develop competence in applying established programming procedures to routine problems. This Computer Programmer performs routine programming assignments that do not require skilled background experience but do require knowledge of established programming procedures and data processing requirements, and works according to clear-cut and complete specifications. The data are refined, and the format of the final product is very similar to that of the input, or is well defined when significantly different, i.e., there are few, if any, problems with interrelating varied records and outputs.

The Computer Programmer II maintains and modifies routine programs, makes approved changes by amending program flow charts, developing detailed processing logic, and coding changes, tests and documents modifications and writes operator instructions, may write routine new programs using prescribed specifications, and may confer with EDP personnel to clarify procedures, and processing logic.

In addition, the Computer Programmer II may evaluate simple interrelationships in the immediate programming area confers with user representatives to gain an understanding of the situation sufficient to formulate the needed change, and implements the change upon approval of the supervisor or higher level staff. The incumbent is provided with charts, narrative descriptions of the functions performed, an approved statement of the product desired (e.g., a change in a local establishment report), and the inputs, outputs, and record formats. This Worker reviews objectives and assignment details with higher level staff to insure thorough understanding; uses judgment in selecting among authorized procedures and seeks assistance when guidelines are inadequate, significant deviations are proposed, or when unanticipated problems arise. Work is usually monitored in progress, and all work is reviewed upon completion for accuracy and compliance with standards.

Education: High School diploma or GED; Working towards completing the following certifications: Certified Software Development Professional (CSDP) (Previously known as Certified Software Engineering Professional (CSEP)), or with COR approval complete a vendor/platform specific certification (e.g., Microsoft Certified Solutions Developer (MCSD), Microsoft Certified Applications Developer (MCAD), Microsoft Certified Database Administrator (MCDBA), Sun Certified Professional (SCP), Red Hat Certification Program (RHCP), CISCO Certified Network Professional (CCNP), Oracle Certified Professional (OCP), other).

Experience: At least three (3) years of experience, to include: Software Design, and Development. One (1) year programming experience with "Specific Project" programming languages. Note: Experience may be concurrent. Adequate experience performing the duties of the labor category as described in the Department of Labor functional description.

### 3.7.11 Program Analyst

Analyzes program requirements, status, budget and schedules. Performs program management, technical, or business case analyses. Participates as a member of and/or supports the specified Program Integrated Product Teams (IPTs); and IPT directed business meetings. Collect, complete, organize and interpret technical data and financial information relating to aircraft acquisition and product programs. Tracks program/project status and schedules. Applies policies and procedures for financial planning.

Education: BS or BA degree in a Business, Management or "Relevant Technical Discipline". ALLOWABLE SUBSTITUTION: An AS or AA degree and an additional four (4) years of experience; OR an additional six (6) years of experience may be substituted for a BS or BA degree.

Experience: At least four (4) years of experience in program management, technical or business analysis discipline; and included in the four (4) years, there must be At least four (4) years of experience in program management, technical or business analysis; and included in the four (4) years, there must be two (2) years professional experience in technical efforts supporting major weapon systems and components development. Demonstrated experience in the program/project status and schedules. Demonstrated knowledge of SECNAV, OPNAV and OSD policy and documentation related to PPBS, life-cycle management of military acquisition programs (as specified in the DoD 5000 series). Must have experience processing program acquisition, funding and contract documentation for military programs.

### 3.7.12 Program Analyst, Junior

Provides program office analysis support. Participates in meetings and supports specified Program Integrated Product Teams (IPTs). Tracks program/project status and schedules, takes minutes, prepares presentations, reports, studies, documentation. Performs tasks under supervision.

Education: AS or AA degree. ALLOWABLE SUBSTITUTION: An additional four (4) years of experience can be substituted for an AS or AA degree.

Experience: At least two (2) years of experience in a business or technical position.

Appendix A{ TC "A Acronyms"\f a\l 1}

Acronyms

| Acronym | Definition |
|---|---|
| ADP | Automated Data Processing |
| AE | Age Exploration |
| ANSI | American National Standards Institute |
| AR | Affordable Readiness |
| AS | Aerospace Standard |
| ASQ | American Society for Quality |
| CAC | Common Access Card |
| CAD | Computer Aided Design |
| CAM | Computer Aided Manufacturing |
| CaNDI | Commercial and Non-Developmental Items |
| CASS | Consolidated Automated Support System |
| CCNP | CISCO Certified Network Professional |
| CDEX | Compact Disk Engineering Data Exchange |
| CDR | Critical Design Review |
| CDRL | Contracts Data Requirements List |
| CM | Configuration Management |
| CONUS | Continental United States |
| COR | Contracting Officer Representative |
| COTS | Commercial-off-the-Shelf |
| CFR | Code of Federal Regulations |
| CPSMR | Contractor Progress Status and Management Report |
| CSD | Contract Start Date |
| CSDP | Certified Software Development Professional |
| CSEP | Certified Software Engineering Professional |
| DART | Days Away Restricted Time |
| DFIS | Data File Index Structure |
| DOD | Department of Defense |
| DON | Department of the Navy |
| EIA | Electronic Industry Alliance |
| $E^3$ | Electromagnetic Environmental Effects |
| ECP | Engineering Change Proposal |

Appendix A

Acronyms

| Acronym | Definition |
|---|---|
| EIA | Electronic Industries Alliance |
| ESD | Electrostatic Discharge |
| ESS | Engineering Support Services |
| FAR | Federal Acquisition Regulations |
| FBI | Federal Bureau of Investigation |
| FEA | Finite Element Analysis |
| FMEA | Failure Mode Effects Analysis |
| FMECA | Failure Mode Effects Criticality Analysis |
| FMS | Foreign Military Sales |
| FN | Foreign National |
| FOD | Foreign Object Damage |
| FRACAS | Failure Reporting, Analysis and Corrective Action System |
| FSO | Facility Security Officer |
| FRC | Fleet Readiness Center |
| GFP | Government Furnished Property |
| GFI | Government Final Inspection |
| GFS | Government Furnished Software |
| HMR | Health Material Report |
| HSE | Human Systems Engineering |
| IAW | In Accordance With |
| ISSC | In Service Support Center |
| ID/IQC | Indefinite Delivery/Indefinite Quantity Contract |
| IEC | International Electro-technical Commission |
| IEEE | Institute of Electrical and Electronics Engineers |
| IMC | Integrated Maintenance Concept |
| INST | Instruction |
| IPR | In-process Review |
| IPT | Integrated Product Team |
| ISO/EIC | International Organization for Standardization/International Electro-technical Commission |
| IT | Information Technology |
| ITAR | International Traffic in Arm Regulation |
| JEDMICS | Joint Engineering Data Management Information and Control System |
| JPAS | Joint Personnel Adjudication System |

Appendix A

Acronyms

| Acronym | Definition |
|---|---|
| LES | Local Engineering Specification |
| MCAS | Marine Corps Air Station |
| MCSD | Microsoft Certified Solutions Developer |
| MDR | Maintenance Repair Overhaul Deviation Request |
| MRB | Material Review Board |
| MSG | Maintenance Steering Group |
| NACI | National Agency Check with Inquires |
| NACLC | National Agency Check with Local Agency Checks |
| NATIP | Naval Aviation Technical Information Product |
| NATOP | Naval Air Training and Operating Procedures Standardization |
| NAVAIR | Naval Air Systems Command |
| NAWCTSD | Naval Air Warfare Center Training Systems Division |
| NISP | National Industrial Security Program |
| NDI | Non-Development Item |
| OCONUS | Outside C ontinental United States |
| OCP | Oracle Certified Professional |
| OJT | On the Job Training |
| PDM | Phased Depot Maintenance |
| PMA | Program Managers Aircraft |
| O&M | Operation and Maintenance |
| OPSEC | Operation Security |
| OSHA | Occupational Safety and Health Agency |
| PAC | Post Award Conference |
| PCO | Procuring Contract Officer |
| PDR | Preliminary Design Review |
| PHS&T | Packaging, Handling, Storage, and Transportation |
| PRR | Production Readiness Review |
| PMS | Planned Maintenance System |
| PM | Preventive Maintenance |
| PPE | Personnel Protective Equipment |

Appendix A

Acronyms

| Acronym | Definition |
|---|---|
| QM | Quality Management |
| R&M | Reliability and Maintainability |
| RAMEC | Rapid Action Minor Engineering Change |
| RCM | Reliability Centered Maintenance |
| RHCP | Red Hat Certification Program |
| SAAR-N | System Authorization Access & Request – Navy |
| SCP | Sun Certified Professional |
| SF | Standard Form |
| t | |
| SFR | System Functional Review |
| SOW | Statement of Work |
| SPS | Software Product Specification |
| SRR | System Requirement Review |
| T&TE | Tools and Test Equipment |
| TCIR | Total Case Incident Rate |
| TD | Technical Directive |
| TDP | Technical Data Package |
| TEI | Temporary Engineering Instructions |
| TO | Task Order |
| TOC | Total Ownership Costs |
| TOCOR | Task Order COR |
| TRR | Test Readiness Review |
| VPP | Voluntary Protection Program |
| WD | Wage Determination |
| WMS | Workload Management System |

Appendix A

Acronyms

| Acronym | Definition |
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